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THE UNIVERSITY OF ALBERTA

THE RELATIONSHIP BETWEEN ORAL LANGUAGE COMPETENCE AND READING COMPREHENSION ABILITY IN SEVENTH GRADE MALES

by

©

HILDA JEAN PENNER

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH

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FACULTY OF GRADUATE STUDIES AND RESEARCH

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research, for acceptance, a thesis entitled The Relationship of Oral Language Competence and Reading Comprehension Ability in Seventh Grade Males submitted by Hilda Jean Penner in partial fulfilment of the requirements for the degree of Master of Education.

W. D. Wilde
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J. G. Paterson

Date ..December 17, 1975....

ABSTRACT

The major purpose of this study was to determine if a relationship exists between oral language competence and reading comprehension ability. Proficiency in oral language ability was assessed through pupil performance in two descriptive tasks. Reading ability was measured through the achievement scores in a reading test.

The twelve subjects who participated in this study were English speaking seventh-grade boys attending two public schools of different socio-economic areas in the city of Edmonton. The subjects were selected on the basis of their travelling background and mental ability. Following is a brief description of the four sub-groups into which the twelve subjects were divided:

Sub-groups	$L\ell\tau_1$	$Lo\tau_1$	$H\ell\tau_1$	$Ho\tau_1$
	2	2	2	2
	3	3	3	3

L and H represent lower and higher socio-economic status respectively, $\ell\tau$ and $o\tau$ indicate that the subjects have travelled little or often respectively. The numbers 1, 2, 3 indicate three intelligence ranges, low (1), mid (2) and high (3).

The Canadian Census Report, 1971, provided data concerning the socio-economic status of the areas. Travelling, reading and language background of the subjects was obtained through questionnaires (Appendices B and C). School records supplied results of performance on the following:

a. Lorge Thorndike Intelligence Tests for mental ability,

b. Gates MacGinitie Reading Test for grade one reading achievement, and

c. Stanford Achievement Test for grade six reading achievement.

To measure competence in oral language the descriptive tasks of comparison and contrast and story-telling were administered to each subject and analyzed by the investigator. Permission for use of these descriptive tasks was given by Edna Siemens who developed them to provide a much needed measure in elementary education for assessing individual children's instructional needs in language.

To measure reading comprehension ability the vocabulary and the reading subtests of the Dvorak-Van Wagenen Diagnostic Examination of Silent Reading Abilities, Junior Division, Form M, were used.

The investigator hypothesized that if oral language competence and reading comprehension ability are related then the subjects more competent in oral language would also achieve higher scores in reading comprehension tests or vice versa. Analysis of the data indicated that the subjects from the higher socio-economic area were more proficient in oral language and reading comprehension than the subjects from the lower socio-economic area. The often travelled sub-groups, particularly from the higher socio-economic area, had the advantage over the little travel sub-groups in both oral language and reading ability. Mental ability seemed to be least influential on performance in oral language and reading in the often travel sub-group of the higher socio-economic area. However, it was noted of the lower socio-economic group that as the subjects' intelligence scores increased, the better the performance in areas of language measured and in reading ability.

From the results of this study the postulation can be made that a relationship exists between oral language competence and reading

comprehension in these seventh-grade males. The findings suggest that there is a need for greater emphasis on oral language facility in diagnosis and remediation of reading disabilities. For an assessment of oral language facility, descriptive tasks used in this study could be utilized. Furthermore, the findings suggest that modifications in instruction, consisting of a variety of oral language tasks should be made for pupils who are observed to experience difficulties in oral language and reading within the classroom setting.

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Chapter I

THE PROBLEM

INTRODUCTION

The need for a reading program that continues throughout the school life of children has been realized within this century. As children progress through school, reading material becomes more difficult which would seem to necessitate a reading program to emphasize skills which ensure the understanding of all types of material at successive levels of difficulty (Jenkinson, 1973). Not only is it necessary to be able to make correct sound/symbol associations but it seems important that the reader, in order to comprehend, must be able to understand the meaning represented by the symbols.

Increasing research knowledge concerning relationship of oral language and reading achievement seems to have influenced the examination of the scope and function of language used by children. Wilkinson (1971) and Ruddell (1974) claim that there are four processes of language, i.e. listening, speaking, reading and writing (normally acquired in that order). Thorn (1974) agrees and adds that these processes are interrelated and interdependent. Vygotsky (1962) points out that language acts as a mediating device for thought and communication.

De Hirsch (1966), Zalma (1971), Wardhaugh (1971) and Samuels (1972) seem to concur that language is first learned when a child hears oral language used. Meanings are learned and attached to certain sounds which make words. As the child develops he also learns to say the words and the patterns these words can take, to transmit meaning. Soon he learns the structure of the language (sentences) and by the time most normal children begin school they have acquired language ability in listening (receptive language) and speaking (expressive language) and are able to control many of their inconsistencies and complexities of their language (Rakes, 1974).

The next language process a child is expected to learn is reading (receptive language). Bateman (1968-69) and Gargiulo (1971) describe reading as a sound-symbol association process where the printed word (graphic symbol) is connected to meaningful sound. In order for the connection to take place or in order to decode graphic symbols into meaning the child needs to learn that the graphic symbols represent sounds (words, sentences) that he employs when he uses oral language (Durrell, 1953; Morency, 1968-69). Reading, then is the reception of visual stimuli, associating this visual stimuli to specific sounds previously learned and simultaneously recalling the meaning the sounds represent.

Writing, like speaking, is expressive language. In this process the participant writes graphic symbols that represent words which in turn represent what he is attempting to say.

Although there are four language processes, two expressive and two receptive, this study is looking at only two, i.e. one expressive (speaking) and one receptive (reading) to determine if a relationship exists.

The oral-language-user according to Siemens (1973), Ruddell

(1974) and Thorn (1974) needs to be aware of words (labels for concepts) and must understand language structure in order to select words and structure that organize meaning. Furthermore, they conceded that the reading-language-user who is attempting to construct a message expressed in symbols also needs to be aware of words and understand language structure to organize meaning. Since oral language is learned before reading, it would appear that the reader's success in comprehension depends on his knowledge of the oral form of language. I.e., the quality and quantity of vocabulary and the variety and quality of sentence structure he has heard and learned to use, would seem to influence his ability to reconstruct the meaning of a writer.

Since one aspect of this study attempted to observe oral language behavior, an instrument needed to be selected to elicit oral expression. Watts (1944) and Grant (1972) agree that a descriptive task (whether oral or written) reflects a child's ability to operate with meaning and to express relationships. However, it may be a factual enumeration of an object, material or person. Siemens (1973) found that the descriptive task of comparing and contrasting was useful for eliciting and analyzing oral language. In this task, objects, pictures and events are examined for noting similarities and differences. The subject is required to examine, differentiate and describe objects according to: function, time, space, size, position, emotion, number and sequence.

Language competency may be defined as a child's repertoire of words for naming and qualifying meaning, as well as fluency with words in sentences and control of speech (Siemens, 1973). It would appear that comparing and contrasting could indicate quantity and quality by naming, differentiating and describing; and indicate fluency and control by the manner in which the naming, differentiating and description is handled.

Researchers (Gray, 1957; Henderson, 1969; Goodman, 1970; Rystrom, 1970; Jenkinson, 1973; and Latham, 1973) who have studied and discussed reading comprehension seem to concur that a reader is engaged in a highly skilled thinking process if meaning is acquired from the printed page. This acquisition of understanding has been described as a grasp of relationships where syntax and semantics work together to make approximations of meaning possible. Reading is a creation of semantic or meaningful content by predicting meaning, i.e. sampling, confirming, rejecting or modifying the prediction. This arriving at meaning is a recognition of relationships between and among words and is also a highly skilled thinking process which rearranges underlying sentence meaning.

Both reading and speaking appear to be thought processes where reading is the reception of thought and speaking is the expression of thought. Furthermore, it seems that for the reader to comprehend and the speaker to communicate, vocabulary, phonology and syntax of a language are utilized and need to be understood. Consequently it would appear that ability in oral language would influence or affect achievement in the receptive language process of reading.

In designing studies of language competence and reading it is essential that factors that may affect either or both are taken into account. Fisher (1965) claims that children do not come to school equally prepared. Deutsch (1963) and Bernstein (1967) found that socio-economic status affected language facility and achievement at school. Dechant (1970) claimed that a child's ability in the language processes may be partly predicted by the number, type and various experiences he has had. The level of a child's intelligence also influences his progress at school and his competency in language (Yules, Rutter, Berger and Thompson, 1974). In order to accommodate for these variables, this study takes into account socio-economic background, travelling experiences and intelligence.

PURPOSE OF THE STUDY

The major purpose of this study is to determine if a relationship exists between oral language competence and achievement in reading comprehension in seventh grade males.

Specifically, this study is designed to disclose whether competence in oral language and ability in reading of male students from a higher socio-economic background differs from that of the male student from a lower socio-economic background at the same grade placement level in school. It further seeks to establish whether there is a difference in language and reading performance between boys who have more travelling experiences than those who have less within the two socio-economic groups. Finally, the study is also designed to determine whether there is a difference in language and reading performance among male students with different intelligence scores.

DEFINITION OF TERMS

Following is a discussion to clarify the meaning of terms used in this study.

Reading comprehension is a thinking process whereby a reader processes graphic symbols to arrive at meaning.

Language competence is the speaker's repertoire of words for naming purposes and qualifying meaning, fluency with words in sentences and control of speech in the descriptive tasks of comparison and contrast and story telling.

Language facility is used interchangeably with language competence.

Higher socio-economic is a phrase which pertains to status of groups and individuals from the area described as the higher socio-economic area in Table 3.1.

Lower socio-economic is a phrase which pertains to status of groups and individuals from the area described as the lower socio-economic area in Table 3.1.

Language power "is the integration of two major areas of a child's development, his thinking power and his language competence" (Siemens, 1973, p. 9).

Communication unit "is the grammatical independent clause with any of its modifiers" (Loban, 1963, p. 7).

Often travel group is a phrase used to describe the subjects who indicated on the questionnaire (Appendix B) that they travelled often (nearly every year).

Little travel group is a phrase used to describe the subjects who indicated on the questionnaire (Appendix B) that they travelled never, or some (about three times).

DESIGN OF THE STUDY

A brief description of the sample and testing procedures is included in this section.

Sample

Four groups of male pupils from two schools participated in this study. All the pupils were in the seventh grade in the Junior High Division of the Edmonton Public School System.

The two schools used, represented a higher and a lower socio-economic area. A group of six subjects was selected from each school, where three were accounted for by much travelling experience and three by little travelling experience. Furthermore, each subject was also chosen according to his intelligence score so that three intelligence ranges could be established in each of the travelling experience sub-groups for both schools.

Data Collection

To obtain oral language samples of all the subjects in the study, the comparison and contrast and story-telling tasks of Description: A Measure of Children's Language Power (devised by Siemens (1973) for her master's thesis) were administered individually to each subject. Responses were recorded on tape and transcribed by the researcher. In order to procure ability scores in reading comprehension the Dvorak-Van Wagenen Diagnostic Examination of Silent Reading Abilities Junior Division Form M was administered to groups of pupils with results scored and recorded by the investigator. Testing and collection of data were completed in April and May, 1975.

The analysis of the oral language was done by the researcher and was corroborated by having two independent judges score the pupils' responses and by subsequently resolving disagreements.

RESEARCH QUESTIONS

The study attempted to ascertain answers to the following questions:

1. Is there a relationship between socio-economic background and either oral language competence or reading comprehension or both?

2. Is there a relationship between experiential background (travelling and reading experiences) and either oral language competence or performance in reading comprehension or both?

3. Is there a relationship between intelligence and either oral language competence or performance in reading comprehension or both?

4. Is there a relationship between oral language competence and performance in reading comprehension?

DATA ANALYSIS

The oral language samples from the comparison and contrast task were analyzed according to criteria established by Siemens in her instrument, Description: A Measure of Children's Language Power. The language elicited by the story-telling task was measured by enumerating certain language features, i.e. total number of words, communication units, and number of words in the communication unit.

For a description of reading ability, percentile scores were obtained for finding the main idea of a paragraph, noting details stated in the paragraph, recognizing related ideas, making inferences and interpretations, the total reading comprehension score, vocabulary in context and vocabulary in isolation.

When the analysis of the oral language samples and the description of reading achievement was completed, examinations were made to discover differences in performance between subjects of higher and lower socio-economic backgrounds, much and little travelling experience, and different intelligence scores.

SIGNIFICANCE OF THE STUDY

This study might be pertinent to current procedures in teaching reading to junior high school boys. If it is found that lack of language competence, as indicated by analyzing description tasks, hinders reading comprehension, then such knowledge can serve as an impetus to the construction and utilization in a reading program of methods of teaching and activities for male students specifically designed to develop better language competence in order to facilitate better reading ability.

LIMITATIONS OF THE STUDY

1. This restricted sample will demand caution in any generalization or extrapolation of the results since the study was limited to a group of only twelve male subjects.

2. No attempt was made to take account of individual

differences in motivation or attitude and personality of the subjects, yet these factors may have influenced performance.

ORGANIZATION OF THE STUDY

The remainder of the study is organized as follows:

Chapter II—Related Literature. This chapter includes a review of literature relevant to a definition of language and reading in order to illustrate dependence of reading achievement on oral language ability, develop a definition of reading comprehension, and to discuss "description" as a means of eliciting language. The factors of socio-economic background, experiential background and intelligence as they pertain to this study are also discussed.

Chapter III—Design of the Study. This chapter describes the population, sample, research instruments, pilot studies, testing procedures, analysis of the data and the reliability of the instruments and of the analysis.

Chapter IV—The Analysis and Findings of the Study. This chapter presents the analysis of the oral language samples, the description of the reading performance, and the findings of the study with respect to the research questions.

Chapter V—Summary, Conclusions, Implications and Suggestions for Further Research. A summary of the study is provided in this chapter, the main findings and the conclusions based on these findings. The implications of the findings for educational purposes are discussed and suggestions for further research are provided.

Chapter II

RELATED LITERATURE

INTRODUCTION

The review of literature relevant to the present study attempts to: develop a definition of language, indicate the relationship between language and reading in order to illustrate dependence of reading achievement on language competence, develop a definition of reading comprehension and indicate methods of analyzing language. Since Siemens (1973) "Description: A Measure of Children's Language Power" was used to elicit and analyze oral language in the present study the need for the use of such an evaluation of language is discussed and information specifically relating to her study is provided. Finally the review of literature discusses variables used by the investigator as they relate to the present study. These variables are socio-economic background, experiental background and intelligence.

LANGUAGE

> Language is a highly organized, systematic means of representing experience, and as such it assists us to organize all other ways of representing. (Britton, 1970, p. 21)

Language is a series of signals to which meanings are arbitrarily attached; but in order that these interpretations add up to understanding the signals (words) must be arranged in order, they must be patterned. Some meanings and some patterns are more likely than others. Awareness of possible meanings and patterns is important in reception and production of language so that the language user will select words, meanings of words and structure that organize meaning (Wilkinson, 1971).

Dechant (1970), Geyer (1972), Gleason (1965), Goodman (1968) and Lefevre (1970) would support the above since they seem to agree that language is a systematized structure made up of patterns of patterns. These patterns are represented by symbols which are oral for the speaker, phonic for the listener, graphic for the writer but grapho-phonic for the reader. Furthermore, symbols represent words and when these words are patterned correctly, language, and finally meaning results. Thus language is a system which is made up of patterns, where the patterns represent the system or its syntax. The organization of the words in a spoken or written system provides clues to meaning.

According to Chomsky (1969), Strickland (1969), Lefevre (1970), Smith (1971), Vygotsky (1962) and Wilkinson (1971) this "system" or "pattern of patterns" acts as a mediating device for thought and communication. In humans, words fulfill a symbolic function and the patterns of words referred to form concepts. Thus words are symbols for concepts.

Carroll (1967), Vygotsky (1962), Gagné (1967), Dechant (1970) and Smith (1971) concur that a concept is a way of organizing thought into classifications, abstractions, generalizations, categories or relationships which may be represented by words individually or in groups. Dechant (1970) claims that the process of thinking in an abstract way is called conceptualization and the end result is a concept and adds that a word is the verbal expression of a concept. Carroll (1967) takes the view that differences in intellectual and educational levels and experiences will account for differences in the sheer number of concepts attained by the individual. Gagné (1967) reports that the test for the presence of concepts is a matter of demonstrating that generalizing can occur. According to Vygotsky (1962) the process of concept formation is a gradual evolution and the individual may not accomplish this ability before he is twelve years of age. The claim is made by Vygotsky (1962) that concept formation takes place in three basic stages, each subdivided into several stages: the syncretic heap, complex thinking and finally true concepts. As long as thinking in complexes dominates, the abstracted feature which is unstable yields easily to other features. Not until abstractions become stabilized and are synthesized does a true concept emerge. Analyzing and synthesizing are the main instruments of thought and the facilitator is the word. Gagné (1967), Carroll (1967), Dechant (1970) and Smith (1971) concede that the quantity and quality of concepts acquired depends on the individual's age, intellectual capacity, educational and experiential background. In relation to language then there will be individuals with fewer concepts of little variety which may be identified by a meager vocabulary lacking in quality or there may be those with many concepts of a great variety who may be identified by a vast vocabulary rich in quality. Or there may also be those with a vast vocabulary but lacking in quality. This variation Osgood (Carroll, 1966) refers to as "experiential differential" and "semantic differential."

Language, therefore, is an organized structure of patterns of words. Of this structure language users seem to be intuitively aware. The words, symbols for organized thought (concepts) or patterns of words communicate meaning, where understanding is acquired through the concepts the words represent. Consequently language is said to act as a mediating device for thought and communication. If the number of concepts and quality of vocabulary depends on age, intellectual capacity and educational and experiential background then it would appear that the language required will also depend on the above factors.

LANGUAGE AND READING

There is much evidence in research that a close relationship exists among the language arts, namely speaking, listening, reading and writing. One can reason that since the purpose of language is communication and that each of these aspects of language is used either in the expressive or receptive act of communication, similar thought processes occur.

Lefevre's (1970) model of "know-how" of the English language is composed of the four communication arts and skills of speaking, listening, reading and writing. Smith, Goodman and Meredith (1974) claim that the entire process of reading can be best understood when consideration is given to the devices within language that convey meaning and the ways readers interpret and react to these devices.

Shuy (1974) suggests that "an effective reading instruction program will recognize that children begin with a well developed language system." Hopkins (1970) investigated relationships between levels of linguistic competence and reading achievement with grade one students and found that the child's ability in morphology and syntax was closely related to his achievement in reading. Dechant (1970), Robinson (1955) and Smith (1971) agree that a child's ability in speaking and listening is the best indicator of his readiness to read.

Ruddell (1963) was concerned with the relationship between written, oral language structure (talk put into writing) and reading comprehension. He observed that reading comprehension scores on materials that utilize high frequency patterns of oral language structure are significantly greater than reading comprehension scores on materials that utilize low frequency patterns of oral language structure. Since only one example of each sentence is given, Wilkinson (1971) concludes that all the research seems to say is that children find material written in simple patterns easier to understand than that written in more complex patterns.

Loban's (1963, 1966a, 1967) research deals with a thirteen-year longitudinal study of the language used with a sample of 338 subjects during the entire course of their schooling. Loban's concern was specifically with the use and control of language, the rates of growth exhibited by the subjects during the course of the investigation, the effectiveness of their communication and the relationships among their abilities in speaking, reading, writing and listening. In this extensive study, abilities in reading, writing, listening and speaking indicated a positive relation to one another. Furthermore, it was found that at all grade levels, those who had the highest oral language ratings also performed best on reading tests.

It was stated above that language acts as a mediating device for communicating thought and meaning. If speaking is expressing language and reading is receiving language both utilize the same device, namely language. The function of both speaking and reading is to communicate thought and meaning and consequently would seem to be related.

READING COMPREHENSION

Since this study is concerned with reading something needs to be said about reading comprehension or the acquisition of meaning while reading.

Gray (1957), Henderson (1969), Dechant (1970), Smith (1971) and Harris (1972) agree that reading comprehension is a thinking process whereby the reader acquires meaning from the printed page. Spache (1969) claims that there are three components to the reading act: the comprehension of words, identifying relationships among ideas the words represent and reasoning and perceiving ideas. He also adds that it is a kind of fluent almost instantaneous combining of words into complete thoughts. Smith (1971) states that reading entails making use of information simultaneously at both surface (word recognition) and deep (concept) structure of language using elements of both visual and semantic information to arrive at meaning.

Gray (1957), Henderson (1969), Dechant (1970), Harris (1972) and Goodman (1973) suggest that there are levels of comprehension.

The claim is made that the reader is working from concrete to abstract meaning, from fact to interpretation or from literal to implicit meaning. Jenkinson (1973) lends support to the idea of levels since she stated that reading comprehension requires different levels of understanding, namely: the contruction, interpretation and evaluation of meaning. Ruddell (1974) also refers to levels where he discusses and identifies three comprehension levels: factual, interpretive and applicative which seem to compare to Jenkinson's constructive, interpretive and evaluative levels respectively. Ruddell (1974) claims that the comprehension skills should not be viewed as forming a rigid hierarchy of independent skills but instead, as comprehension competencies, that are related and identified for instructional purposes. For example, identifying the main idea at the interpretive level is not a requisite for predicting outcomes at the same comprehension level. On the other hand, identifying details at the factual level appears to be essential in order to identify the main idea and predict possible outcomes at the interpretive level. Thus Ruddell (1974), in his discussion identifies each skill competency at each of the factual, interpretive and applicative comprehension levels.

Lists of comprehension components or skills have been devised by Gray (1957), Spache (1969), Geyer (1972), Harris (1972), Wallen (1972) and others. The skills most frequently mentioned are know word meanings, identify, organize, infer, find main idea, relate, interpret, integrate, judge, analyze, synthesize, qualify, apply and evaluate. The comprehension skill most consistently referred to on lists of comprehension components is know word meanings. The other skills, identifying, organizing, inferring, judging, etc. seem to be skills that recognize interrelationships of words or interrelationships of meaning. One may conclude, then, if reading comprehension is acquiring meaning and words are symbols for meaning (concepts) then in order to comprehend the reader must know the meaning of words. In conjunction with knowing the meanings he must also recognize the interrelationships of meanings to form concepts. Dechant (1970) pointed out that meaning depends to a great degree upon the reader's ability to recreate those experiences for which the symbol stands. He added that frequently the "critical element in reading is not what is on the page, but, rather, what the graphic symbol signifies to the reader" (p. 19). Consequently, it would appear that the individual's ability in reading comprehension as in language facility must also be contingent with his intellectual and experiential background.

ANALYZING LANGUAGE

Counting Language Features

Language has been measured objectively by classifying and counting certain language features. Some of the common measurements were number of words, mean sentence length, variety of words and parts of speech, use of unusual words, use of varied sentence types, complexity of structure, coherence and ability to use constraints. Such studies proved useful. Loban (1963) did a most comprehensive longitudinal study of language of 338 elementary school children from kindergarten to grade six. The children were interviewed individually for samples of oral speech over a year. They were given a series of six pictures, asked to discuss what they saw in each picture and what they thought about it. The oral language sample was recorded, transcribed and analyzed. At Loban's first level of analysis the language was analyzed into structures of basic sentence patterns. He found that in general the difference in structural patterns used by high-scoring and low-scoring groups is negligible (except that the high group utilizes more of the linking verb pattern and the low fewer complete sentences). Loban also recorded the number of words, the number of communication units (an independent clause with its modifiers) and the average length of a communication unit. His finding substantiated McCarthy's (1954) that with each succeeding year, children speak more language with more and longer communication units. Hunt (1965) studied written language of students in grades four, eight and twelve. (He used the term T-unit defined as "a main clause plus all the subordinate clauses attached or embedded within it" p. 141.) His T-unit is similar to Loban's communication unit. As a result of his study Hunt reported that of the four indexes: sentence length, subordination ratio, clause length and T-unit length; the best index for indicating a student's grade level is T-unit length.

Description

Why Description?

The above studies suggest that classifying and counting language features for measuring language can be useful. However, another assessment of language was also utilized in the present study.

Following this paragraph is a discussion concerning the need for an evaluation of language other than Loban's (1963, 1966a, 1967) or Hunt's (1965). Since this study used Siemens' (1973) instrument to elicit and analyze samples of oral language her rationale for the use of "description" is presented. An outline of Siemens' instrument, "Description: A Measure of Children's Language Power" follows the presentation of her rationale and the section concludes with detailed results of the parts of Siemens' findings most useful to the present study.

Even as children complete elementary school there is need for continuous teaching of reading (Jenkinson, 1973). In many cases the poor reader is also the poor language user (Loban, 1963, 1966a, 1967). The achievement of a poor reader especially if from a lower socioeconomic background tends to deteriorate as he continues in school (Deutsch, 1965). Consequently, to overcome the lack of language competence in a student, there seems to be a need in education for a comprehensive method of assessing individual children's instructional needs in language.

Studies of children's language in the past as reported and researched by Hunt (1965) and Loban (1963, 1966a, 1967) seemed to be looking for developmental trends. Observations were made concerning the amount of language used; the number of words in sentences, in communication units or T-units or the frequency of various grammatical structures were noted. Such research aptly revealed development or lack of development in language of students, however, there seems to be a lack of a means for appraising the child's needs in language development.

Siemen's (1973) instrument based on description revealed that her subjects indicated developmental trends in oral language performance (summary, pp. 30-31). Her study also disclosed instructional needs of individual children in order that appropriate curriculum experiences may be provided to enhance language power. In this study the comparison and contrast and story-telling tasks of Siemens' instrument, Description: A Measure of Children's Language Power, were used to determine language competence.

What is Description?

Description appears to be a strategy designated to depict precisely objects, materials, persons, events, procedures and things read and heard as noted by the observer (Hennings & Grant, 1973). Fournier (1969) includes in his view of description classification of attributes and comparison of sets of attributes, sequencing of ideas to establish desired emphasis and meaning, and description of relationships. Furthermore, Fournier (1969) and Hennings and Grant (1973) seem to agree that description is based on spatial clues, and Watts (1944) suggests that description takes the form of narration since it deals with objects or events remote in time and space as well as those things directly observable. It seems possible that the strategy of description consists of perceiving the whole of objects and events, abstracting the criterial properties of objects and events, selecting the most essential elements, comparing and contrasting specific properties, sequential and inferential thinking and organization of the ideas (Fournier, 1969; Jackson & McFetridge, 1972). The effectiveness or vividness of the description would seem to depend on the individual's ability in the use of words (language competence). With reference to words (Chapter II, p. 12) it was said that "words are symbols for concepts," and "concepts are ways of organizing thought into classifications, abstractions, generalizations, categories or relationships." The number of concepts acquired affects thinking ability (Dechant, 1970). Thus it would appear that language elicited by description might indicate the individual's cognitive growth in the repertoire of words, quality of words and organization of words into sentences and at the same time be useful to determine if a relationship between oral language competence and reading comprehension exists.

Studies Utilizing Description

Hawkins (1969) obtained children's descriptive language in order to explore social class differences in explicitness of speech behavior. Heider (1968) attempted to discover social class differences in the quantity of criterial properties children mentioned in the description of pictures of animals. Siemens (1973) adds that two exploratory studies (Jackson & McFetridge, 1972; Nixon, 1973) utilizing description, done at the University of Alberta, showed that description could be a useful measure for assessing children's language power. Criteria used by Jackson and McFetridge (1972) for evaluating children's description of objects were: ability to focus, to organize ideas, to provide description, to use relational terms, and the ability to use vocabulary. Nixon's (1973) "Open ended oral responses" indicated significant trends in the language behavior among various groups and between age levels in relation to language power when considering quantity of categories, qualitative changes within categories, dogmatic versus tentative statements, irrelevant responses and egocentric versus cooperative production. After noting the possibilities of description in acquiring and evaluating language, Siemens (1973) designed a descriptive instrument of her own, whereby she attempted to indicate that description is a means that can provide a better understanding of children's language power.

Immediately following is an outline of the instrument devised by Siemens.

SIEMENS' INSTRUMENT AND FINDINGS

Siemens' (1973) instrument, Description: A Measure of Children's Language Power based on her model of description (Figure 1) consisted of seven descriptive tasks. The descriptive tasks administered in order of difficulty were: (1) criterial properties, (2) selection of essential elements, (3) comparison and contrast, (4) sequencing, (5) inference, (6) description and (7) story-telling. These descriptive tasks were to elicit oral language samples from the individual child. Sixteen boys and girls, in two age groups—ages eight years six months to nine years five months and eleven years six months to twelve years five months were Siemens' subjects for administering the tasks. In each age group there was an equal number of average language users and high language users. There were four groups in all.

The analysis of language samples paid special attention to

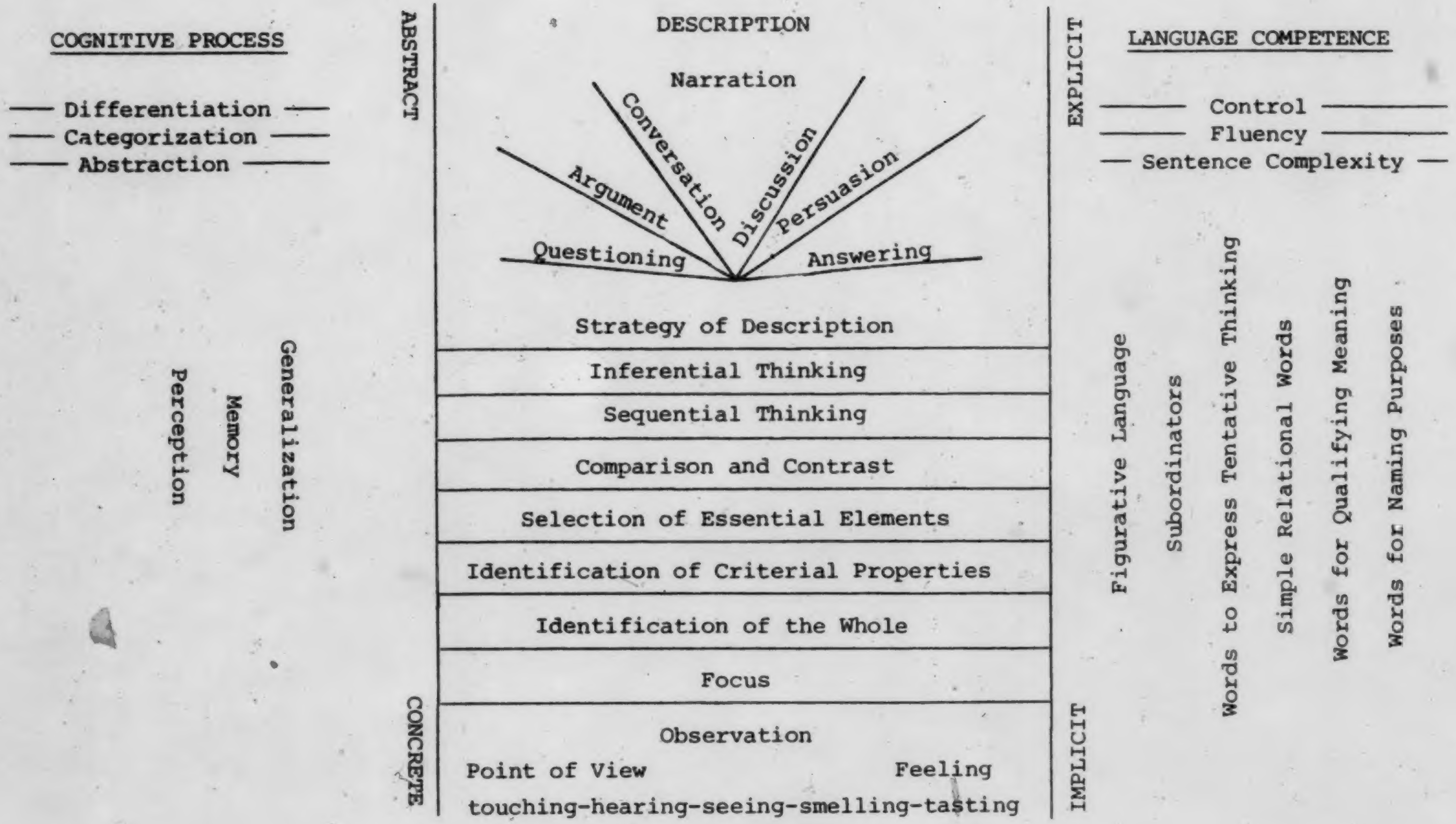

Figure 1

A Model of the Strategy of Description

(Siemens, E. Description: A Measure of Children's Language Power. Master's thesis, University of Alberta, 1973, p. 48.

trends and patterns in frequency distribution, qualitative levels, and the nature of the speech behavior with regard to the four groups, the two age groups and the average language users and the high language users within an age group. The findings indicated that the trends and patterns in the frequency distribution pointed to growth in the concrete-abstract dimension, the qualitative levels related to either the concrete-abstract dimension or the implicit-explicit dimension or both; and when the speech behavior was examined growth patterns were identified in the implicit-explicit dimension.

Further analysis was done in the form of case studies of two children's language samples in "description" and "story-telling," comparing their performance in the first five descriptive tasks relative to the scope of their language power. This analysis provided a relative comprehensive picture of their oral language.

At the conclusion of the entire analysis, Siemens found that the descriptive task "Comparison and Contrast" produced the most information of all the tasks about the children's oral language growth. There was evidence of children's development in the identification of the quantity and quality of criterial properties and categories of meaning in objects and events, the sequence of the subjects used in specifying differences and similarities when comparing stimuli and the repertoire of words and the use of words in sentences. In her comparison and contrast task (p. 69, 76 and Appendix A), which the present study used, Siemens' findings indicated the following:

a. Organization of the Task: All subjects were able to use the similarities first sequence although there was indication that the older and higher language users tended to use more similarities first or interspersion sequences than the younger and average language users. Church (1961) claims that as children develop, the ability to specify differences develops before the ability to specify similarities. As the questions increased in complexity fewer similarities first or interspersion sequences occurred until by questions seven and eight the responses were predominantly differences only. When relational propositions are complex, associations are made by contrast rather than by similarity (Vygotsky, 1962) which may explain the few similarity first sequences in the last two questions.

b. Quantity of Common Abstracted Features: There did not seem to be a difference in number of features abstracted, between the young and average language user and the older and higher language user. Question three produced the highest number of common abstracted features; questions one, two, four and five had relatively similar numbers. Questions six, seven and eight yielded the lowest number of common abstracted features with the older and high language user providing more than the younger average language user.

c. Quality of Common Abstracted Features: The most frequently identified categories of meaning were limited mainly to color, function, use, and part-whole relations, indicating that functionalism is still prevalent at ages eleven and twelve (Olver & Hornsby, 1966). As the questions increased in complexity the number of categories of meaning rated as "conceptual responses" increased consistently with the exception of question seven. Siemens suggested that possibly this reflects a different approach by eleven and twelve year olds from eight and nine year olds to questions involving the drvelopment factor of objectivity in thinking. She based her reasoning on Piaget and Inhelder (1969) who claim that approximately age twelve is the period when the transition from subjective to objective behavior in thought and speech is fully realized. Siemens also referred to Ausubel (1963) who argues that objectivity represents progression toward greater differentiation manifested in particular in the growing ability to adapt to the point of view of others. Some subjects in all the groups communicated conceptual responses but the older higher language user indicated a greater number of conceptual responses than the other groups. For question five the older groups included a considerably higher number of conceptual responses than did those of the younger children.

d. Expressions of Relationships: The subjects in general listed few isolated features and few reduced comparisons. The older high language user employed fewer listed abstracted features but more reduced comparisons than the other groups. In the use of relational terms and comparative words maturity and language facility was indicated by the frequency of statements of comparison, use of relational terms and comparative words. The older high language users used more relational terms in making comparisons than did the younger and average language users.

After examining the language samples where relational terms and comparative words were utilized, Siemens found that relational terms were used most often to refer to similarities among common features, while comparative words were used more frequently to refer to differences.

In Siemens' study two patterns were apparent in the use of relational terms:

a. The variation in kinds of relational terms which were used and the increase in the number and nature of more complex sentences in comparing stimuli in the four groups appeared to be determined, to a great extent, by the complexity of the question. Relatively simple sentences appear in questions one, two, three and five. The sentences in questions four, six, seven and eight seemed to increase in complexity due to specific requirements of the multiple comparisons, the definition of a birthday and an anniversary, and the comparison from the point of view of others.

b. Not only did the older groups use a greater number of relational terms than the younger groups but they also indicated a higher conceptualization of thought, a greater repertoire of words and provided more information. Siemens claimed this trend to be most apparent in the older high language user.

"Both" was considered to be a relational term. It was the most frequently used relational word in showing similarity among common features in the comparative objects particularly in questions one, two, three and five. When other relational words were employed, they usually referred to differences among the common features of the comparative objects. Other high frequency relational terms used were "bigger than" and "more than." The older and higher language user tended to increase the kinds of relational terms used. Language samples were closely examined for greater number of relational terms, longer and more complex sentences and quality of vocabulary. Siemens postulates that:

> The older groups particularly the high language users operated at higher levels of conceptualization of thought, used a greater repertoire of words, showed more depth in word meaning and included greater amounts of information in their sentences than did the younger groups. (p. 189)

The multiple comparison of the shoe, the boot and the slipper of question four was reported by Siemens (1973) to cause some difficulties. A few of her younger and average language users were unable to relate the common features of three objects in one comparative statement. Attributes in the single object were observed and communicated, with each object attended to in turn. Only one subject made comparative statements about two objects and omitted the third, however, most of her subjects, particularly the older high language user, were able to make multiple comparisons.

In question six which involved a definition of the abstract concepts of a birthday and an anniversary, two subjects of Siemens' younger average language users, one of her younger high language users and three of the older average language users did not attempt any kind of a definition. Their comparisons consisted of concrete aspects of the two occasions. Of the older high language users all the subjects attempted a definition.

Question seven required the subjett to compare the boot and slipper from the point of view of an ant. All of the subjects in Siemens' study suggested an attempt to compare the boot and the slipper from the point of view of an ant, however, all subjects were not successful in maintaining that point of view. Those that were able to uphold the ant's point of view were only one of the younger average language users, three of the younger high language users, three of the older average language users, yet all of the older high language users.

In question eight, ten of the sixteen of Siemens' subjects attempted to make a comparison, although the instructions did not explicitly state that a comparison was required. The task was to express from father's point of view, how he would feel reading the newspaper wearing the boots or the slippers. Only five subjects used relational terms.

Comparative words were used mainly to point to differences in the abstracted common features when comparing stimuli. Simple sentences and simple compound sentences were employed by all the groups. The trends and patterns in use of comparative words by the subjects seemed to be similar to those resulting from the use of relational terms. More information was communicated with deeper conceptualization of thought, a greater variety of words and more complex sentences were used by the older and in particular the high language users. All groups tended to use more complex sentences in questions four through to eight, where subjects were to make multiple comparisons, compare more abstract concepts and comment on point of view and feeling.

In summary, according to Siemens' (1973) assessment of the comparison and contrast task, the following may be said about the performance of the older and higher language user when compared to the younger and average language user:

1. A tendency to use more similarities first sequences rather than differences first except in questions seven and eight.

2. A greater quantity of common abstracted features for questions six, seven and eight.
3. More conceptual categories.
4. Fewer listed abstracted features.
5. More reduced comparisons.
6. More statements of comparisons.
7. A greater use of relational terms.
8. A greater variety of relational terms.

The investigator took particular note of the subjects' performance in the above aspects in order to evaluate language competence.

VARIABLES RELATED TO THE STUDY

In the present study groups were established according to socio-economic and experiential backgrounds and intelligence. This chapter concludes with reviewing the literature pertaining to how the above factors relate to language competence and reading ability.

Studies of Socio-Economic Background

Most laymen are aware that social stratification exists in our society. This is evidenced by references to people who "live on the wrong side of the tracks," the "slum dwellers," the "common man" or the people who belong to country clubs as distinct from those who are in labor unions. These are terms commonly used to divide people into various socio-economic groups (Kaplan, 1959).

Numerous labels have arisen through attempts to arrive at an all-embracing definition of the lower classes: culturally deprived, underprivileged, low socio-economic group, economically restricted, disadvantaged, etc.. Fisher (1965) disagrees with the use of labels and claims them to be inappropriate and gross oversimplifications. He argues that no one can be deprived of a culture and hastens to add that educators are probably deprived in their understanding of certain minority groups, which leads to the failure of the school to adjust adequately to the individual needs of this group. In addition, Fisher (1965) reasons that probably the most accurate and least offensive term to use on behalf of these minority groups is "poverty," a term which probably pinpoints the one thing they all have in common. Yet he also admits that this says little by way of description, in that the children and home conditions differ greatly from each other. Fisher also states that one tends to overlook the available source of love and encouragement that may be supplied in these homes by families and friends. He supports the stand taken by Congreve (1966) that underprivileged children are to be found in both social settings—high and low.

It seems fairly evident that children do not come to school equally prepared for the learning tasks that confront them. In order to accommodate at least partly to this difference, the review of literature in this study cites research that speaks to relationships between socio-economic status and: language maturity, reading achievement, intelligence, attitudes, and aspirations and expectations.

Research reveals (Bernstein, 1967; Deutsch, 1965; Loban, 1963, 1966a, 1967; Labensohn, 1967; Fast, 1968; Milner, 1951) that aspects of the home environment play an important role in rate of development and acquisition of learning tasks of the individual student. There is ample research evidence that children of low socio-economic homes generally have poorer language ability than do children from middle class homes and that children who are not proficient in oral language are also those who are poor in reading achievement.

Bernstein (1967) postulates that lower and working class children will experience difficulty in learning to read, in extending their vocabulary and in learning to use a wide range of possibilities for the organization of verbal meaning; their reading and writing will be slow and will tend to be associated with concrete content. He indicates that lower socio-economic children perform more poorly on IQ tests than do children from other socio-economic groups.

Hill and Giammateo (1963) found grade three children of high socio-economic status performing well above low socio-economic children in reading, vocabulary and comprehension.

According to Labercane's (1968) research, children from lower socio-economic levels have poorer recognition and recall vocabularies than children from upper socio-economic levels. Moreover, the relationship between recognition and recall is different for each group. Generally the findings point to the necessity of increased experiences for children of low socio-economic levels in order to develop vocabulary skills.

Labov (1964) cites evidence that language development is further impaired by lack of opportunity to learn through feedback. Oral communication among members of this level of society tends to be brief and is frequently restricted to situations demanding direction or correction. The child learns to speak the language he hears and adopts the dialect as well as the speech pattern of his environment. John and Goldstein (1964) lend support to Labov (1964) since they postulate that it is inadequate verbal interactions rather than poverty of experience that accounts for the slower rate of language acquisition by lower class students. One may infer further that verbal interaction may be instrumental in acquiring better language facility.

With reference to Loban's (1967) longitudinal study, the findings on socio-economic status indicate that on every aspect of language studies those of high socio-economic status invariably used more language and gained power over language earlier and to a greater degree than did subjects of low socio-economic status. His study also disclosed that the high language users were the better readers. Furthermore, his research reported a widening reading gap from year to year between those rated high and those rated low in language ability. Rodgers, Slade and Conry (1974) investigated the differences in oral language competence existing in the "average" Canadian urban classroom. Areas examined were fluency, vocabulary and connectives in oral language in three grade one classes. Significant differences in oral language competence existed among the grade one English speaking children. These differences correlated significantly with the socio-economic area in which children resided. Children from low socio-economic areas were more likely to have low achievement in the oral language measure than middle or high achievement. Children of high socio-economic areas or backgrounds were more likely to have higher achievement than those of middle class areas; none had low achievement. Furthermore, when reading achievement was measured at the end of second grade the oral language groups differed significantly from one another on all their reading measures.

Interesting information came from two studies by Deutsch (1965) and Keller (1963) attempting to relate intelligence with levels of socio-economic status. Both involved students in first and fifth grades from the poor sections of New York City—except Deutsch's included middle class children. At both grade levels Deutsch found lower social status to be associated with poor performance on all intelligence scores and that this close association became more marked as the child progressed through school. A general deterioration of achievement occurred by the fifth grade in both Keller's and Deutsch's studies. Deutsch postulates that these particular lower class youngsters are subject to a "cumulative deficit phenomenon." That is, when four years of ineffectual schooling are added to a poor home environment the end result is a group of children who are even less capable of handling standard intellectual tasks. Keller reasons that the poverty of spirit engendered by the constriction of experiences in the lower socio-economic area may be partially responsible for the low intelligence scores.

Bloom (1964) suggests that intelligence differences tend to increase with age. As a consequence, there are larger mean differences in IQ between low and high socio-economic children in adolescence than in early years.

Curry (1962) used 360 sixth graders selected at random from thirty-three elementary schools. He compared the achievement scores of students having high, medium and low intelligence quotients with an index of their socio-economic status level. He found that social conditions seem to have no effect on the achievement of students within the high ability range. Language was affected adversely by low social class status for the medium group while both language and reading achievement were so influenced in the low ability group. In general, Curry disclosed that as intellectual ability decreases from high to low, the adverse effect of poor socio-economic conditions increases greatly. High intelligence seems to offset any environmental and economic deficits—at least at this level.

Hansen (1973) observed that the home literary environment was the only factor which he investigated that showed a significant relationship to the reading attitudes of fourth grade subjects. The involvement of the parents with reading activities was the major factor. The conclusion seemed to be that it is not necessary for parents to be avid readers to rear children who are. To substantiate Hansen's observations, Gordon (1965) claims that there is considerable evidence that many lower class parents are concerned about education for their children. Many of these parents, he adds, can still provide stimulating environments for their children even though restricted in educational attainment. Congreve (1966) takes the view that disadvantages can and do arise from conditions more profound than economic ones. He emphasizes the role of one's self concept, which he claims emerges from one's peculiar environment and experience. In his experience, excellent self-concepts are formed in children of some of the poorest families while some unfortunate self images are cast in children of some of the richest families.

In 1973 Porter, Porter and Blishen tackled the question of whether financial barriers prevent high school students from continuing their education at university. The results of this study can be used to substantiate views of Vernon (1960), Hansen (1973), Congreve (1966) and Sheldon and Carrillo (1952). Questionnaires were used to get at the aspirations, expectations and self concepts of the students in grades eight, ten and twelve and their parents. With respect to aspirations, the percentage at each socio-economic status level of grade ten and twelve students choosing to leave school early rose from 24% in class I (high socio-economic status) to 57% in class VI (low socio-economic status). Those hoping to complete grade thirteen decreased from 76% in class I to 43% in class VI. The parents of low socio-economic status children also indicated lower aspirations for their children than did those of higher social status. The parents of low social status may value an education but do not press children as much about getting it. Furthermore, 73% of the students with low mental ability from higher social background planned to finish grade thirteen while only 59% of the high mental ability students of the lower social background expected to go that far. From this study one may conclude that social class background has a greater impact than intelligence in determining when a child leaves school. Self concept of ability was also noted and also appeared to be related to social class. For both grades ten and twelve students the proportions having a high self concept of ability decreased from over one-half of the high socio-economic children to less than one-third of the low socio-economic students.

In summary, it may be said that it is difficult or even unfair to put a label on any group of people. Yet most studies mentioned above seem to indicate that children from low socio-economic homes generally have developed a poorer language and do more poorly in reading than children from middle class homes. Furthermore, there are indications that a general deterioration of achievement occurs as the weaker students from a lower socio-economic background continue at school. Studies revealed that the aspirations and expectations of both parents and children of low socio-economic status are lower than those of high socio-economic status. Research points to evidence to indicate that attitudes are created in the home. If parents have low aspirations and expectations the attitudes of the children toward education may be adversely affected by the attitude of low socio-economic parents. In conclusion, then, studies reveal that socio-economic status has been observed to affect language maturity and achievement in reading.

Studies of Experiential Background

It appears that not only socio-economic background would influence a child but also the number and varied experiences he may have regardless of socio-economic status. Consequently, review of literature relating to experiential background is also included. As a basis for further learning, the value of experience is hardly disputable, and evidence is mounting to indicate that its value is increased when obtained in the early years.

Jensen (1963) and Worth (1965) agree that according to our present knowledge of the development of a child's learning abilities, the preschool years are the most important years of the child's life. A great amount of development and learning occurs during these early years. As early as the 1930's Dewey maintained that wholly independent of desire or intent every experience lives on in further experience. Dechant (1970) claims that experience is the foundation of all educational development, and that a rich background of experience prepares the child to attack the printed page, that is, it equips him to react with meaning to what he reads. He adds that children, given a variety of opportunities for experience, have far greater potential for developing concepts, word knowledge and general background of meaning to enable them to understand what they read, since without experience the child has nothing on which to base learning. Olsen (1965) affirms that language does grow out of experience. Brunner (1965) suggests that children are aided in naming accurately the objects, feelings or actions associated with their experiences and learn to describe them. Olsen's assumptions would appear to support Brunner.

Research has been done on the effect of experience on achievement by comparing identical twins reared in the same and different environments. Bloom (1964) summarizes several studies on the scholastic achievement of twins, siblings and unrelated children reared together and apart. His findings support the contention that experience provided by the environment has a powerful effect on the educational achievement of children. His conclusion was that children of similar hereditary make-up perform similarly given the same experiences and differently given different experiences.

Douglas (1964) claims that although innate capacity may be the most powerful single influence on achievement level, there is evidence that extreme deprivation of experience leads to progressive deterioration in academic ability.

According to Wilson (1948) many textbooks are difficult for students with limited experiential background because not enough detail is provided to properly expand general and abstract statements included in the books. In her study with grade six and seven students she concluded that amplification of reading materials is advantageous to comprehension. Weiner and Cromer (1967) point out that many readers are able to say a word yet have no comprehension because they have no experience to which they can relate the word. Therefore, their contention is that comprehension can take place provided that the reader already has language skills similar in complexity to what he reads. With this Deighton (1959) would likely agree since he concedes that the extent to which context reveals meaning varies with the experience of the reader.

In Milner's (1951) study it was found that the high scorers in reading had travelled more frequently than the low scorers. Yokley (1958) notes that all good readers involved in her study took trips with their parents to various places. In a study of a first grade class, Smith (1961) reports that a total of two hundred and four concepts resulted from nine excursions undertaken at the beginning of the year. There was found to be a positive correlation between the concept supply resulting from excursions and the vocabulary demands of primary reading.

Inglis (1974) in his study relating experiential knowledge and reading achievement found that high reading achievers were exposed to more reading related experiences than low reading achievers. McCarthy (1950) claims that increases in children's vocabularies are almost always associated with travel and other broadening environmental experiences. The purpose of Lowry's (1968) study was to discover influences of certain home centered, preschool experiences on the reading achievement of grade two pupils. Statistically significant correlations with reading were found with the experience questionnaire and the book questionnaire suggesting that a variety of experiences including reading experiences do make a difference in establishing readiness for reading.

Keshian's (1963) study supports Dechant's (1970) stand concerning reading material. His successful readers characteristically have access to a great variety of reading materials in the home. More magazines were subscribed to by parents of the more successful readers than by parents of the poor readers. Sheldon and Carrillo (1952) emerged with a similar result since they found a consistent trend in their sample. As the number of books in the home increased so did the percentage of good readers, while the percentage of average and poor readers diminished. Nearly the same results are revealed earlier in Milner's (1951) study. Specific figures are released by Yokley (1958). The good readers had access to more books and magazines at home than did the poor readers. Forty percent of good readers had more than fifty books at home as compared with the poor readers, 59% of whom had five books or less.

From the above studies one may conclude that a rich experiential background, specifically travelling and reading experiences, aid a child in the learning situation. The knowledge acquired and the language gained in the many and varied travelling and reading activities seemed to help the child in bringing meaning to the printed page.

Indications of students' performance seem to indicate that innate capacity is also influential in school achievement. Therefore, the review of literature concludes with the factor of intelligence in relation to language and reading.

Studies of Mental Ability in Relation to Oral Language Competence and Reading Ability

According to Dechant (1970) intelligence seems to be more closely related to reading (than to language) and more important to success in later grades than in the beginning stages. Vernon (1960) however, seems to disagree with Dechant (1970) on that point since Vernon's reasoning is that as a child grows older and usually more skilled in reading, the IQ becomes less important. When one takes note of Bond and Tinker's (1957) results which found correlations between reading and intelligence were .35 in grade one and .65 in grade five, Dechant's view seems more credible. It would appear that the more advanced the reading skills involved, the higher the mental competence required to cope with reading.

Shire (1945) studied three hundred first graders in parochial schools. The results of the multiple correlation indicated that intelligence was the highest variable in predicting reading achievement while certain language factors were next. Loban (1966a) discovered that in his study the highest correlation was between vocabulary (symbols that represent meaning in language) and intelligence. An oral vocabulary test was administered in kindergarten and the Kuhlmann-Anderson group test of intelligence was administered in the second grade. A product-moment correlation of .844 was obtained. From his review of research, Carroll (1960) concludes that the relation between language maturity and intelligence appears to be low but positive.

There appears to be consensus among reading authorities that reading achievement and intelligence are closely related. One must note, however, according to Vernon (1960) that it is important to know the type of test used to test intelligence when speaking of correlations between intelligence scores and reading performance. The nonverbal items on intelligence tests have lower coefficients of correlation with performance in reading than do verbal items on intelligence tests since performance on the latter generally depends on the ability to read.

Monroe (1939) claimed that there is a tendency for the children whose reading achievement scores are above expectation to have somewhat higher intelligence than those whose reading achievement is below expectations. Bond and Tinker (1957) studied 379 fifth graders and noted while there was a positive relationship between reading and intelligence there was also considerable range in achievement to be found among fifth grade students at any intelligence level. He hastens to add that children with IQ's of 125 or higher are not to be found among poor readers. Likewise there are few with IQ'S below 95 among the very able readers. Bond and Tinker (1957) take the view that low IQ is not itself a direct cause but it may lead indirectly to reading disability. Smith (1963) lends support to the idea that the intelligence quotient is a good predictor of reading success. The interrelationship of IQ and socio-economic status may, howevever, be a more valid predictor for success in reading than intelligence alone.

Yules, Rutter, Berger and Thompson (1974) investigated the relationship between intelligence and reading ability in 7,175 nine through fourteen year old British school children. A short form of the Wechsler Intelligence Test for Children and Neale's Analysis of Reading Ability were used. Four groups of intelligence were established. The mean reading scores in each group were calculated. Only in the mean group did mean IQ and reading scores correspond. In the higher IQ groups the mean reading score was lower, in the lower IQ group the mean reading score was higher. Furthermore, the study reported that the percent of pupils greatly below that expected for their age and intelligence was greater in the normal distribution. In the London ten year olds the observed percent of reading accuracy and comprehension was 6.32 compared to the predicted 2.28. This finding led to the conclusion that there is a group of children with severe and specific reading retardation which is not just the lower end of the continuum.

Keller (1963) examined the correlates of dominance, IQ, sex, reading achievement and grade level in 277 children, grades three to twelve, in an effort to deal with interaction of all five variables. Significant correlations were found between IQ and reading achievement in all groups (and grades) classified according to sex and handedness. However, significant differences were found in the coefficients of correlation only in grades three to seven in boys lower than girls, left-handed boys lower than left-handed girls, left-handed boys lower than right-handed boys, left-handed boys lower than right-handed girls, while in grades eight to twelve no significant differences were found between groups in the correlations of IQ and reading achievement.

As revealed by the above mentioned research one may infer that intelligence influences language facility and reading achievement. However, it would appear that language maturity may be affected less by intelligence than reading achievement.

SUMMARY

This chapter has been concerned with literature related to a definition of language and the relationship between oral language and reading with the intent of indicating dependence of reading achievement on language competence. A definition of reading comprehension was also included. References were made to traditional methods of analyzing language. Description, as a means of eliciting oral language, was discussed. Since Siemens' instrument was utilized in this study to elicit and analyze oral language this part of the chapter concluded with an outline of her instrument under its heading: "Description: A Measure of Children's Language Power." To terminate the chapter the review of literature examined the variables socio-economic background, experiential background and intelligence which the investigator used in the present study.

Chapter III

DESIGN OF THE STUDY

INTRODUCTION

In this chapter, the design of the study is described under the following headings: population, sample, the research instruments, the pilot studies, testing procedures, analysis of the data and the reliability of both the instruments and the analysis.

POPULATION

The population for this study consisted of grade seven boys of two junior high schools in two socio-economic areas in the city of Edmonton, Alberta. Edmonton Public School Board personnel selected the schools from which the sample was drawn.

SAMPLE

Twelve grade seven boys were included in the sample, six from each of the two schools. Of the six, three were described as having "often travel" experience and three as "little travel" experience. Each of the three subjects in a "travel" sub-group was of a different intelligence range. All subjects spoke only English.

Outlined below is a rationale for procedures used to identify the sample. The investigator has noted that in the Edmonton Public School System much work is being done to aid students with reading disabilities and to implement programs to prevent reading problems, with emphasis on the early elementary grades. Jenkinson (1973) suggested that teachers should also be aware that it seems necessary that reading be taught beyond elementary grades. It would appear that research is needed to aid in determining possible explanations for problems in reading beyond elementary grades. Research indicates (Deutsch, 1965; Loban, 1963, 1966, 1967) that the gap in reading ability between good and poor readers widens as the students continue in school. It would seem feasible then that if a reading problem exists after elementary grades the sooner it was corrected the better. Therefore for this study seventh graders were selected.

Furthermore, the majority of the students requiring help in reading in the elementary schools in the Edmonton Public System are boys. This would suggest that in this system more boys have difficulty in reading than girls do. There is research evidence (Hughes, 1953; Robinson, 1955) that found girls superior to boys at reading tasks, especially in the elementary grades. However, Schulman and Havighurst (1947) claimed no reliable difference between boys and girls of the ninth and tenth grades in vocabulary study. Whereas Preston (1962) found boys to be superior to girls in reading tasks with German children. In order to overcome influences that sex differences may have just beyond elementary grades, and since the majority of the problem readers in the Edmonton Elementary Public School system are males, the investigator decided the seventh graders chosen for this study would be boys. Added to that, the decision was made to select males of relatively low, medium and high levels of ability.

Such a selection would provide opportunity to determine possible reasons for different levels in reading achievement among seventh grade boys. The revelation of such information could be pertinent in planning a reading program for male students in the seventh grade to aid in overcoming, or better yet preventing problems in reading beyond elementary grades.

To substantiate the selection of the schools to be of lower and higher socio-economic status, information from the population laboratory at the University of Alberta, Canadian Census Report 1971 was utilized. Table 3.1 is a description of the two areas from which the schools were selected. It was not the intent of the investigator to determine one area as "low" and the other as "middle" or "high class" and label them as such, but rather to use information to enable the study to make the claim that one area was of a higher socio-economic status than the other. Therefore, when reference is made to the two areas, the terms "lower socio-economic" and "higher socio-economic" are used, not "low", "middle" or "high class".

A questionnaire (Appendix B) was administered to all the seventh grade boys in the two schools to determine the students' travelling experience, and the father's occupation and education. Another purpose of the questionnaire was to obtain information that would guarantee that English is the only language the subjects use. Research indicates (Singer, 1956; Kittell, 1959 and Ching, 1965) that bilingualism seems to have an adverse effect on vocabulary development, knowledge of sentence structure and reading achievement.

The students from each school were classified as either of

Table 3.1

Description of the Areas

	Lower SES	Higher SES
Vacation home per household	3%	9%
Automatic clothes dryer per household	31%	62%
Two or more automobiles per household	17%	35%
Homes built before 1946	2,370	595
Homes built 1960-1970	195	413
Education of males:		
Less than Grade 9	48%	28%
Grade 9 and 10	19%	17%
Grade 11	8%	10%
Grade 12 and 13	12%	23%
Some university	3%	8%
University degree	1%	8%
Occupation of males (those mentioned most frequently:		
Sales	6%	16%
Managerial, administration	2%	10%
Service	15%	10%
Product fabricating	10%	10%
Natural science, engineering, math, social sciences, religion, artistic, literary, recreation	3%	9%
Clerical and related	8%	9%
Medicine and health	1%	4%
Construction	21%	7%

According to Canadian Census Report, 1971.

low (80-100), middle (101-120) or high (121-140+) intelligence according to the results of the Lorge-Thorndike Intelligence Tests administered in 1974. The intelligence scores were obtained from the cumulative records in the schools. The students' reading achievement scores on the Gates MacGinitie Reading Test—grade one and on the Stanford Achievement Test—grade six were also obtained from the cumulative records.

The selection of subjects took place in the following manner. Sixty-eight boys from the higher socio-economic area and thirty-three from the lower socio-economic area answered the questionnaire. Seventeen boys from the higher socio-economic area and fourteen boys from the lower socio-economic area were eliminated because a language other than English was spoken in the home, or because the child spoke this language himself. Twenty-three students from the higher socio-economic area and six students from the lower socio-economic area were excluded because of lack of information in the cumulative records. The remainder of the students were grouped into "little" and "often" travel experience sub-groups with three intelligence ranges in each sub-group. The travelling experience category was determined from the questionnaire (Appendix B). Children whose intelligence score fell into the 80-100 range were placed into group 1, those children whose IQ score fell into the 101-120 range were placed into group 2 and those whose IQ score fell into the 121-140+ range were placed into group 3.

The group from which the final selection was made is described below:

Intelligence Group	1		2		3	
	Often travel	Little travel	Often travel	Little travel	Often travel	Little travel
Higher socio-economic	7	3	10	2	5	1
Lower socio-economic	3	2	3	3	1	1

Careful selections were then made in order to get three students from "often travel" background and three students from "little travel" background in each intelligence range from one school, to match as closely as possible in travelling experience and intelligence with six students from the other school. Thus four sub-groups of three were established. A description of the sample is shown in Table 3.2.

THE RESEARCH INSTRUMENTS

Introduction

Two instruments were used in this study. In order to elicit and analyze oral language, descriptive tasks were administered, and in order to obtain reading comprehension scores a reading ability test was given. This section explains why comparison and contrast and story-telling of Siemens' seven descriptive tasks were chosen to be used and how they were administered. The criteria on which the tasks were constructed are provided and a description of the tasks themselves is included. Information concerning the Dvorak-Van Wagenen Diagnostic Examination of Silent Reading Abilities which was utilized to determine reading ability scores is also provided.

Table 3.2

Description of Sample
Grade Seven Boys

Group	Subject	Intelligence Range	Age	Reading Score Grade 1[1] (Per-centile)		Reading Score Grades 5 & 6[2] (Percentile) Gr.5		Gr.6		Occupation of Father	Education of Father	Number of Maga-zines in Home	Number of Books in Home	Number of Books Read in One Year
				Vocab.	Compre-hension	Vocab.	Compre-hension	Vocab.	Compre-hension					
Lower socio-economic Little Travel L ℓτ	1	80-100	13,8	10	31	1	8	9	16	Music Teacher	Gr.7	2	50-75	25
	2	101-120	12,8	79	76	49	49	36	44	Laborer	Gr.9	1	25-50	10
	3	121-140+	12,8	79	69	76	79	57	67	Milkman	Gr.9	7	75-100	25-30
Lower socio-economic Often Travel L οτ	1	80-100	13,6	14	7	14	53	26	21	Terminal Mgr.	Gr.9	1	10	5
	2	101-120	12,6	90	86	87	73	68	57	Firefighter	Gr.9	3	200-300	1-5
	3	121-140+	12,8	50	66	87	65	75	83	Carpenter	Gr.9	4	30	10
Higher socio-economic Little Travel H ℓτ	1	80-100	12,6	21	24	4	1	12	7	Truck Driver	Gr.6	3	30	0
	2	101-120	13,1	69	69	83	90	93	96	Salesman	Gr.12	1	50	1-5
	3	121-140+	12,7	24	31	55	80	90	89	Engineer	Gr.12 NAIT	3	250-300	1-5

[1] The Reading Score for Grade One is given for Gates MacGinitie Reading Tests in percentile scores.

[2] The Reading Score for Grades 5 & 6 is given for Stanford Achievement in percentile scores.

Table 3.2 (continued)

Group	Subject	Intelligence Range	Age	Reading Score Grade 1[1] (Percentile)		Reading Score Grades 5 & 6[2] (Percentile)				Occupation of Father	Education of Father	Number of Magazines in Home	Number of Books in Home	Number of Books Read in One Year
						Gr.5		Gr.6						
				Vocab.	Comprehension	Vocab.	Comprehension	Vocab.	Comprehension					
Higher socio-economic Often Travel														
H oT	1	80-100	11,9	54	76	70	75	75	87	Engineer	Univ. Degree	5	250-300	20-30
	2	101-120	13,0	82	84	95	78	98	96	Real Estate	Univ. Degree	5	400-500	15-20
	3	121-140+	12,5	66	46	65	67	75	75	Electrician	Gr.12	6	200-300	10-15

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[1] The Reading Score for Grade One is given for Gates MacGinitie Reading Tests in percentile scores.

[2] The Reading Score for Grades 5 & 6 is given for Stanford Achievement in percentile scores.

Oral Language

Two tasks of the Description: A Measure of Children's Language Power instrument were administered by the investigator as a measure of oral language. The comparison and contrast task was used since according to Siemens' study (1973) this task seemed to provide more information concerning language competency than any other of her seven tasks. Furthermore, Siemens' study and the investigator's pilot studies indicated that the samples of language structure from the comparison and contrast task were limited to comparative statements. Consequently it was decided that the story-telling task would also be employed in this study.

The descriptive tasks were administered individually to each subject by the investigator who also taped and transcribed the subjects' oral language responses. The comparison and contrast task was analyzed and assessed according to Siemens' criteria, whereas the story-telling task was subjected to an analysis based on Loban's (1963, 1966, 1967) longitudinal study where quantity of certain language features was taken into account.

An overview will be given in this section explaining the tasks, the general objectives for the tasks and the rationale for both the tasks and the accompanying instructions. Table 3.3 presents the manner in which the criteria for the construction of the research instrument guided the development of the tasks and the construction of the questions, the specific task requirements, the nature of the stimuli, the rationale for the selection of the stimuli, and the description requirements for each descriptive task. The research

Table 3.3

Summary of the Construction of the Descriptive Tasks

Task Requirements	Stimuli	Description Requirements
	III. Comparison and Contrast	
Focus Abstraction of common features Classification of abstracted features (same or different) Adopting point of view of others Adopting feelings of others Qualitative analysis (eg. greater, lesser, etc.)	1. Two concrete objects - taste, sound, visual (bell/jelly beans) 2. Two concrete objects - taste, sound, visual (powder/jelly beans) 3. Two concrete objects - increasing number of component parts (truck/V. W. van) 4. Three pictures - three objects (shoe/boot/male slipper) 5. Verbal stimuli - objects within child's experiences (school/theatre) 6. Verbal stimuli - abstract concepts within child's experiences (birthday/anniversary) 7. Two pictures from Question #4 - point of view of others (ant comparing boot/slipper) 8. Two pictures from Question #4 - point of view and feelings of others (father reading newspaper comparing boot/slipper)	A. Organization for task (different-similar or similar-different sequences of inter-spersion of different-similar) B. Quantity and quality of the abstracted features C. Expression of relation-ships of abstracted features - Listing abstracted features - Reduced comparisons - Statements of comparison (Use of relational terms and comparative words)

Siemens, E. Description: A Measure of Children's Language Power. Master's thesis, University of Alberta, 1973, p. 71.

Table 3.3 (continued)

Task Requirements	Stimuli	Description Requirements
	VII. Story Telling	
Focus Identification of whole	Picture evoking emotion - people, objects, and an event in a given time and place (choice of one - fireman fighting a blaze; policeman forming a barricade for a crowd of people; young girl surrounded by children playing autoharp outdoors)	A. Title
Selection of essential elements		B. Plot
Comparison and contrast		C. Organization (introductory sentence, sequencing of ideas, ending)
Sequencing		D. Expression of relationships
Inference		
Organization of ideas		

Siemens, E. Description: A Measure of Children's Language Power. Master's thesis, University of Alberta, 1973, p. 74.

tasks comparison and contrast and story-telling appear in Appendix A as they were presented to the subjects. Pictures of the stimuli are included in the Appendix.

The comparison and contrast and story-telling tasks are tests of oral "language power" (p. 6) and were developed by Siemens (1973) for use in her master's thesis. As presently constructed the comparison and contrast task consists of eight questions whereas the story-telling task requires the subject to tell a story.

Comparison and Contrast

The objective of the comparison and contrast task was to obtain samples of descriptive language in making comparisons of objects, pictures and concepts which included sound, taste and smell as well as visual patterns.

The rationale for the questions was based on child development theories. Ausubel (1963) claimed that there are progressive stages of growth in the way a child relates the experiences of the world. He suggests that the preschool child develops from dependence on concrete perceptual data to dependence on concrete-empirical representation (pictures or experiences) for the elementary school child, to abstract thinking for the adolescent. Ausubel (1963) adds that when past experiences have laid a firm foundation for the understanding of meaning concrete-empirical data is no longer necessary for the elementary school child. It would appear that in such a situation concept formation has occurred. Dechant (1970) claimed that actual experiences with the concrete object, person or event results in conceptualization. However, Ausubel (1963) stated that in situations involving abstract ideas or complex relational propositions, the elementary school child will be dependent on concrete representation or may even revert to a sub-verbal concrete level of cognitive functioning. This going back to the sub-verbal concrete suggests the child lacks experience with the abstract idea or complex relational proposition. In other words, the concept concerning that abstract idea has not yet been acquired.

Thinking in terms of objects directly observable seems to be thinking in its simplest form (Watts, 1944). Children of three, four or five years of age have been observed (Everett and Armstrong, 1968) to show that concrete representations evoked more meaningful responses than did pictorial representations. Children seemed to relate better to that which is a concrete object than to that which is a representation of an object. Pictures seem to stand midway between the world of objects and events directly observable and the world that exists in memory and imagination. To speak about objects or events remote in time and space is an ability achieved later as is the ability to hold more images and ideas together in the mind at one time. Gradually, probably not until the age of eight or nine the ability develops to speak of a number of related ideas concerning objects or events remote in space and time (Watts, 1944).

When the ability to speak about the point of view and feelings of others has developed, the transition from subjeotive to objective behavior in thought and speech has taken place. Piaget (1926), Ausubel (1963) and Vygotsky (1962) concur that this transition from subjective to objective behavior occurs simultaneously with the transition from concrete thinking to abstract thinking. Egocentrism and egocentric speech is indicative of subjectivity in the child's development and is characterized by concentration on self, gross discriminations, conglomerate word meanings, diffuse concepts and absence of role-taking. On the other hand, objectivity represents progression toward greater differentiation, demonstrated particularly in the growing ability to adapt to the point of view of others (Ausubel, 1963). In Piaget's system the process of "decentering" which allows for the transition from action to thought, accounts for the transition from subjectivity to objectivity. The transition makes possible for the child to move from the state where everything is centered on the child's own body and actions to a "decentered" state where his body and actions assume their objective relationships to all the other objects and events in the child's universe. It is suggested that it is during the period from two to twelve years that the slow, unfolding, integrating process of a transition from subjective to objective centering takes place. An indication of a progression towards objectivity in this period seems to be a gradual socialization which leads to a state of being able to see another's point of view (Piaget and Inhelder, 1969).

The construction of the eight questions of the comparison and contrast task were based on the above mentioned child development theories. The stimuli for the questions were selected for the purpose of arranging the questions in order of difficulty from the simple to the more complex. Consequently, the stimuli in the questions appeared in this developmental order: concrete objects, pictures and verbal stimuli, from those based on experience to abstract concepts. In the stimuli involving component parts, the stimuli consisting of numerous parts followed those with minimal component parts. In like manner in questions involving more than one stimulus, questions consisting of three stimuli followed questions with two. The two final questions in the comparison and contrast task required the subject to comment on the point of view and feelings of others. These last two questions were thus designed to measure growth in subjective-objective behavior.

In the first six questions the instructions were simply "Compare these." To aid the child in understanding the word "compare," the directions for the first question were: "Compare these objects. How are they the same and how are they different?" The selected stimuli consisted of the following:

Question one:	A brass bell about five inches tall and a medium-sized jar containing some jelly beans (objects).
Question two:	A small plastic container with white talcum powder and the medium-sized jar containing some jelly beans (objects).
Question three:	A toy truck and a toy bus (objects). The directions were changed as follows, for this question in order that the subject might deal with these objects as real vehicles instead of toys: "Let's suppose these are not toys but actually the real thing. Compare them as though they were real objects."

Question four:	A brown boot with yellow laces, a red tartan male slipper and a blue and white gym shoe (pictures).
Question five:	A school and a theater (verbal - "Compare a school and a theater).
Question six:	A birthday and an anniversary (verbal - abstract concepts - "Compare a birthday and an anniversary").

The objective of question seven was to discover the subject's ability in making a comparison from the point of view of others. The requirement was to compare the boot and the slipper, used in question four, from the point of view of an ant.

The comparison in question eight involved adopting the point of view of others and considering the feelings of others regarding the boot and slipper used in question four. The directions were: "Let's suppose your father is reading the newspaper. He may be wearing boots or slippers. How would he feel wearing boots, or slippers, while reading the newspaper?"

Story-Telling

The objective of this task was to discover the subject's ability in a functional language situation in telling a story about an event. The event was contained in a picture expected to evoke emotion. According to Vernon (1962) the capacity to perceive and understand pictures seems to be acquired gradually. At approximately age two or three pictures of single objects can be identified and named. By age seven a child may be able to comment about the more obvious activities of people in the picture. Children under eleven years may not be able to understand a picture which suggests events not actually depicted. Relatively unimportant details may be observed by the younger children while they fail to notice that which appears to be central to the main idea of the picture.

For the story-telling task then the subject was given a choice of three pictures—a fireman fighting a blaze (color); police forming a barricade for a crowd of people (black and white); and a harpist surrounded by children (color).

Other criteria in selecting the various stimuli were to allow for other sensory input besides the visual, i.e. sound, taste, smell and touch. A criterion to be kept in mind was that the language samples were to be obtained in situations similar to functional language situations. The objectives for the administration of the tasks were to include: provision of time for more than a single interview if necessary and provision for acquainting the subject well with the purpose and requirements of the project and the absence of timing of responses.

Reading

The Dvorak-Van Wagenen Diagnostic Examination of Silent Reading Abilities, Junior Division, Form M Part II, Tests 3 and 4 and Part III were administered as a measure of vocabulary and reading comprehension ability. In Part II Test 3 is the vocabulary in context test and Test 4 assesses vocabulary in isolation. There were forty items in each test. Part III Tests 6-10 inclusive are composed of a total of 100 items based on reading passages. These tests 6-10 are to measure five reading comprehension skills: finding the main idea of a paragraph, noting details stated in the paragraph, recognizing related ideas, making inferences and interpretations. Both Parts II and III are administered without time limit.

The manual states that the words used for the vocabulary scales (tests 3 and 4) were selected from the first ten thousand words in the Thorndike Word Book. In the vocabulary in context scales (test 3) the words in heavier black type are said to be simpler than any of the five words from which the replacement word is to be selected.

e.g. Test 3 #10. Nothing can bring back the color of your dress.
1. demolish, 2. modify, 3. restore, 4. transform,
5. devastate.

In test 4, the vocabulary in isolation scales, the five words following the stimulus word are claimed to be considerably easier than the stimulus word itself.

e.g. Test 4 #13. permanent . . . . 1. quick, 2. fearful,
3. lasting, 4. foolish, 5. foreign.

The difficulty values of the exercises or tasks in the scales of Part II tests 3 and 4 were determined on the basis of the proportions of correct answers, corrected for sheer guessing, that were made by more than 800 pupils in grades four, six, eight and twelve in public schools. (Manual, p. 15)

The several kinds of tasks on the reading scales of Part III consist of a question or statement followed by five suggested answers from which the pupil is to select the best one for completing the statement or answering the question from the content of the paragraph. In these scales the 100 tasks are of the same range of difficulty instead of extending over a range of difficulty values as do the scales of Part II.

PILOT STUDIES

In April just previous to the main study, two pilot studies were conducted with two different subjects.

Pilot Study One was presented in one individual interview, to a seventh grade girl from a junior high school in Edmonton. The purpose of this study was to:

1. record time requirements for administration of the comparison and contrast task,
2. allow for trial administration of the descriptive tasks, for the administrator,
3. assess the adequacy of the amount of information elicited from the comparison and contrast task.

As a result of the administration and analysis, the investigator realized, as did Siemens (1973), that the comparison and contrast task yielded only comparative statements although much information was acquired. It was also found that the task took less than an hour. Therefore, to elicit other language structures it was decided that the story-telling task would also be administered and analyzed.

Pilot Study Two was presented in three individual sessions to a seventh grade boy from a junior high school in Edmonton. The purpose of this study was to:

1. record time requirements for administration of the two descriptive tasks and the reading tests,
2. allow for trial administration of the descriptive tasks and the reading tests for the administrator,
3. assess the adequacy of the descriptive tasks and the reading tests.

The second pilot study revealed that the administration of the descriptive tasks, i.e. comparison and contrast and story-telling, and the reading tests would require about two to three hours per subject. The indefinite time was a result of the fact that neither the tasks nor the tests were timed and subjects may work at different rates. It was also decided that instead of using Siemens' (1973) criteria for analyzing the story-telling task, Loban's (1963) method of counting language features would be employed. This measure of language would be utilized in an attempt at determining if another measurement would disclose similar results regarding language facility since the comparison and contrast task would be assessed according to Siemens' criteria.

TESTING PROCEDURES

Data collection began in early May and continued from three to four weeks during the students' language arts periods.

The investigator met with each subject in four or five sessions. Neither the descriptive tasks nor the reading tests were timed, consequently some subjects took more time than others. The descriptive instrument was usually administered in one sitting while the silent reading test was done in no less than two.

In the first session the investigator met with the subjects as a group to establish rapport. In the second session the subjects were met individually to further establish rapport and to administer the parts of the descriptive instruments the investigator used, i.e. comparison and contrast and story-telling.

To begin each of the second sessions with the individual subjects the student was given opportunity to familiarize himself with the tape recorder although most of the students expressed that they had used a tape recorder before. After the student gave his name and address and something about himself on tape he was allowed to replay it. Then he was asked to do a sample of a comparison and contrast task, not on the actual instrument, to familiarize himself with the task ahead. In the first six questions of the comparison and contrast task the directions are simply "compare these". In order to facilitate understanding of the word "compare" the directions for the first question are: "Compare these objects. How are they the same and how are they different?" In question seven the investigator says "If an ant was looking at the boot and slipper, how would it compare them?" For question eight the investigator says (pointing at the pictures of the boot and of the slipper) "Let's suppose your father is reading the newspaper. He may be wearing boots or slippers. How would he feel wearing boots or slippers, while reading the newspaper?" When administering the story-telling task the subject is asked to choose one of the three pictures and to tell a story about it. Testing time was approximately one hour.

The investigator consistently followed the procedure in presenting the two descriptive tasks for each subject as prescribed in the outline and directions for administering them as it appears in Appendix A. In a few incidents instructions were repeated and additional questions posed to aid in better understanding of the test. Since one of the criteria for administration was that the subject clearly understood the task, the investigator felt that repeating instructions and adding a few questions for clarification would not invalidate the measurement.

The Dvorak-Van Wagenen Diagnostic Examination of Silent Reading Abilities was administered to the subjects as a group in two or three sessions. Usually Part II was completed in the first of these sessions. This test is not timed, consequently some students completed Part II and were able to begin Part III in the first session. Others completed just Part II. Since Part III consists of 100 items and the manual suggests that two forty-five minute periods at least should be used, none of the subjects was asked to do the entire Part III in one session. Instructions were given as the directions in the manual indicate.

During the first part of the last session an oral questionnaire (Appendix C) was administered to ascertain the subjects' reading experiences.

ANALYZING THE DATA

The oral language sample elicited in the comparison and contrast task was subjected to an analysis according to the criteria established in Siemens' research instrument listed below. The focus on the comparison and contrast task was mainly on trends in frequency distributions, qualitative patterns, and the nature of the speech behavior by the groups and by individuals. The analysis was done under three headings (details in Chapter IV):

1. Organization of the task:

   Does the subject use differences or similarities first?
   How are the differences and similarities sequenced?

2. Quantity and quality of abstracted features:

   (a) the total number of abstracted features
   (b) developmental levels within concrete to abstract dimensions, under three classes:

   concrete (perceptible)
   functional
   conceptual.

3. Expression of relationships among abstracted features. The objective of this category was to discover the ways in which the subjects expressed relationships among the abstracted features.

In the story-telling task the oral language sample was subjected to an analysis where the quantity of certain language features was noted. The total number of words, communication units and mean length of communication units were determined and recorded. An attempt was made to discover trends in language performance by:

socio-economic group, travel experience sub-groups and by subjects with different intelligence scores within each sub-group.

The results of the Dvorak-Van Wagenen Diagnostic Examination of Silent Reading Abilities were scored and raw scores were recorded. Examination of data took place to determine trends in quality of performance in the eight reading subtests as achieved by the two socio-economic groups, the travelling experience sub-groups and by individuals with different intelligence scores within each sub-group.

Finally the results of the analysis of the oral language sample were compared with the results of the performance on the silent reading abilities test. The results of this comparison were examined for trends that would indicate whether or not the subjects who perform well in language facility also achieve well in reading ability.

RELIABILITY OF ANALYSIS AND OF INSTRUMENTS

The Descriptive Tasks

The transcribing of the tapes was validated by a judge who is a qualified and experienced elementary teacher. The categories and criteria as established and validated by Siemens (1973) were judged for all responses of one-half of the subjects randomly selected by a second and third judge. Disagreements were resolved. The second and third judges were Master's students at the University of Alberta with teaching experience.

The Dvorak-Van Wagenen Diagnostic Examination of Silent Reading Abilities

Stroud (1968) concedes that in Part III (tests 6-10) the reading exercises are ample in number and variety and the test items are constructed with care and competence. He adds that the scores in Part III should reflect reading powers, uncomplicated by rate in so far as this can be controlled by testing procedure. Utilization of items appropriate to each of these processes certainly should give a more comprehensive account of a student's reading ability than would the use of a smaller number. As a general test of reading, Part III according to Stroud, deserves a ranking with the best. Davis (1968) reports that intercorrelations and reliability coefficients are not presented in the manual but they have been reported by Traxler (1941) on the basis of small selected samples. On a sample of 116 tenth grade pupils, the intercorrelations of tests 6-10 range from .43 to .70. Corrected for attenuation the lowest of these becomes .75 and half of them exceed .90.

SUMMARY

In this chapter the design of the study was described under the headings of population, sample, the research instruments, pilot study, testing procedures, analyzing the data and reliability of the instruments and of the analysis.

Chapter IV

ANALYSIS AND FINDINGS OF THE STUDY

INTRODUCTION

The study was designed to determine if a relationship between oral language competence and reading comprehension exists in seventh grade males. Oral language was elicited by using Siemens' (1973) descriptive tasks of Comparison and Contrast and Story-Telling. Reading ability scores were obtained by administration of Dvorak-Van Wagenen Diagnostic Examination of Silent Reading Abilities. This chapter provides the analysis of the oral language, the results of the reading test and the findings when the oral language and the reading performance were compared.

The oral language was elicited by two tasks—comparison and contrast and story-telling. The construction and composition of the comparison and contrast and story-telling tasks are described in detail in Chapter III, section 3. The basic categories for the analysis of the individual description tasks were formed by the description requirements according to Siemens' (1973) analysis. Task-requirements and partly the specific information in the responses were the bases upon which the criteria were established for the analysis of the various categories. The dimensions of growth in language power formed the theoretical framework for Siemens' analysis. The investigator used the criteria established by Siemens (1973) to analyze the comparison and contrast task. In order to determine whether or not similar trends and patterns appear in language facility, even though a different measure is used, the *story-telling* task was subjected to aspects of Loban's (1963, 1966a, 1967) language analysis. When the analysis of the *story-telling* task was complete, trends and patterns of groups and individuals were compared to trends and patterns occurring in the analysis of the *comparison and contrast* task.

Descriptive data on the reading ability scores follow the oral language analysis. To conclude the chapter, comparison of performance in oral language and reading achievement is presented.

The subjects for the study as described in Table 3.2 were twelve, seventh grade males of two socio-economic groups which included four sub-groups of three intelligence ranges each (noted by 1, 2, 3 from lowest to highest) and those of often and of little travel. The characteristics of the sample are shown in the following summary:

	Little Travel ($\ell\tau$)	Often travel ($o\tau$)
Lower (L) socio-economic group	Group L $\ell\tau_1$	Group L $o\tau_1$
	2	2
	3	3
Higher (H) socio-economic group	Group H $\ell\tau_1$	Group H $o\tau_1$
	2	2
	3	3

The analysis focussed on trends and patterns of the groups and of the individuals in oral language and reading ability. The trends and patterns occurring in the oral language were then compared to those appearing in the reading scores.

The selected stimuli for the descriptive tasks are described in Table 4.1. For the *story-telling* task three pictures were presented: (a) colored picture of a fireman, (b) colored picture of a harpist

Table 4.1

The Stimuli for the Comparison and Contrast Task

Question	Stimuli	Requirement
1	a bell and a jar of jelly beans (objects)	compare and contrast
2	a container with powder and a jar of jelly beans (objects)	compare and contrast
3	a toy truck and a toy bus (objects)	compare and contrast as though they are real
4	a shoe, a boot, a slipper (pictures)	compare and contrast
5	school and theater (verbal stimulus)	compare and contrast
6	birthday and anniversary (verbal stimulus)	compare and contrast
7	boot and slipper (same pictures as in 4)	compare and contrast from an ant's point of view
8	boot and slipper (same pictures as in 7)	tell how father would feel wearing the boot or the slipper while sitting and reading the newspaper

and children and (c) a black and white picture of a crowd and policemen.

THE ORAL LANGUAGE SAMPLE

Comparison and Contrast

This part will present the objectives of the comparison and contrast task, the categories for the analysis and the analysis itself.

Since the investigator used Siemens' (1973) instrument, the information concerning the objectives of the descriptive task, comparison and contrast, is that of Siemens. "The objective of the descriptive task 'Comparison and Constrast' was to obtain samples of children's descriptive language in making comparisons of objects, pictures of objects, and concepts" (p. 134). Eight questions, gradually increasing in complexity from the first to the eighth question, were used. Questions one and two required simple comparisons of two objects. In question three the objects to be compared had numerous parts. A multiple comparison of objects in separate pictures was expected in question four. For question five the subject was required to speak of objects and experiences remote in time and space. The subject received verbal stimuli of abstract concepts for question six which meant it would be necessary for him to not only deal with experiences in time and space but also to do some conceptual thinking since he is speaking of abstract concepts. The last two questions were designed to indicate growth in subjective-objective behavior, in commenting on point of view and feelings of others.

The categories for analysis of the comparison and contrast task consisted of three: organization for the task; quantity and quality of the abstracted features; and expression of the relationships among the abstracted features. The following information supplies analysis of the comparison and contrast task under the above headings.

1. Organization for the Task

This category took into consideration the subject's approach to his task in which he was required to abstract common features relating two or three stimuli, and to show the interconnections among the abstracted features. The purpose of this category was to discover whether the subject tended to differences first and then similarities or whether the similarities were mentioned first and then the differences, or if the subject tended to intersperse the similarities and the differences. The ability to specify differences or to specify similarities are said to be developmentally distinct tasks (Church, 1961). Apparently the ability to specify differences develops before the ability to specify similarities. Vygotsky (1962) claimed that the younger child makes associations by contrast rather than by similarity.

The sequence utilized by the individual when organizing his response to each question was noted. A "D/S" sequence meant the subject's response for that question consisted of differences first and concluded with similarities. An example of a "D/S" sequence is taken from a response to question five—compare a theater and a school. The subject began with "One teaches you and one just shows you something; one you pay to get in and one you don't; you work in one and one you just sit and watch; they're both buildings."

An "S/D" sequence indicated that the sequence the subject used *began with similarities* and *ended with differences*. e.g., for question one—compare a bell and a jar of jelly beans. The subject's response was "They both like have metal on top; they both jingle," and concluded with "one's glass and one's metal, steel or something." Subjects also tended to intersperse the differences and similarities. When an *interspersion* took place the response was recorded as "I". An example of an "I" sequence is taken from a response for question two—compare a jar of jelly beans and the container of powder. "The jar is made of glass and the other little container is made of plastic; and the plastic container has a plastic top on it, the glass has a tin top on it; they both hold things and both hold things in it; and the medicine container is round and round like a tube and the other jar is big and fat." The subject began by stating differences, then similarities, which was followed by reference to differences again.

Table 4.2 indicates the sequences employed by each subject in the organization of his responses to each of the eight questions. The asterisks indicate which sequence the subject utilized. The asterisks with the bar under them ($\underline{*}$) indicate that the response had only differences or only similarities.

An examination of the table indicates that the individual subject uses considerable variation in method of organization in the various questions. In an analysis of the organizational sequences

Table 4.2

Sequence Used in Organization of Responses in Comparing Stimuli by Group, Subject and Question

		Questions																						
		1 bell & jelly beans			2 jelly beans & container of powder			3 truck & bus			4 slipper shoe & boot			5 school & theater			6 birthday & anniversary			7 slipper & boot			8 slipper & boot		
Group	Subject	D/S	S/D	I	D/S	S/D	I	D/S	S/D	I	D/S	S/D	I	D/S	S/D	I	D/S	S/D	I	D/S	S/D	I	D/S	S/D	I
L ℓT	1	*̲			*̲					*			*			*	*				*		*̲		
L ℓT	2		*				*		*				*		*		*̲				*		*̲		
L ℓT	3		*				*			*			*			*			*	*			*̲		
L oT	1		*̲			*			*			*			*̲			*̲			*		*̲		
L oT	2			*		*			*			*		*				*		*̲			*̲		
L oT	3	*				*			*				*		*		*̲				*		*̲		
H ℓT	1			*			*			*			*			*			*		*		*̲		
H ℓT	2			*			*			*			*			*			*	*̲			*̲		
H ℓT	3			*			*			*			*			*			*	*̲			*̲		
H oT	1			*			*			*			*	*̲					*			*	*̲		
H oT	2			*			*			*			*			*			*		*		*̲		
H oT	3		*				*		*				*			*			*	*			*̲		

D/S: Differences first, concluded with similarities
S/D: Similarities first, concluded with differences
I: Interspersion of differences and similarities
*̲: Only similarities or only differences noted.

shown in Table 4.2 a number of patterns appeared in the groups according to the difficulty of the questions.

Table 4.1 presents the stimuli as used in the questions. Questions one to three are considered to be simpler than questions four to six, since question four is a multiple comparison and questions five and six deal with verbal stimuli while questions one to three are single comparisons of concrete stimuli. In the present study a different trend seems to appear for questions one to three than for questions four to six in the number of differences or similarities first or interspersion sequences. Questions seven and eight indicate yet a different trend.

Table 4.3 indicates the various types of sequences of sub-groups.

Observations:

1. The L group employed all five kinds of sequences for questions one to three but more S/D sequences than any other; while the H group yielded only I sequences with the exception of one S/D sequence.

2. For questions four to six a similar pattern to the above emerged except that the L group had more I sequences than in questions one to three and the H group had one D sequence instead of the S/D.

3. For question seven the L group yielded no I sequences but more S/D sequences than any other while the H group produced one I sequence and more S/D sequences than any other.

4. Question eight yielded only D sequences by all groups.

Table 4.3

Mean Number of Sequences by Sub-Group

	Questions 1-3					Questions 4-6					Question 7					Question 8
Sub-Group	D	D/S	S	S/D	I	D	D/S	S	S/D	I	D	D/S	S	S/D	I	D
L ℓτ	0.6	0.0	0.0	1.0	1.3	0.3	0.3	0.0	0.3	2.0		0.3		0.6		1.0
L oτ	0.0	0.3	0.3	2.0	0.3	0.0	0.3	0.3	2.0	0.3	0.6			0.3		1.0
H ℓτ	0.0	0.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.6			0.3		1.0
H oτ	0.0	0.0	0.0	0.3	2.6	0.3	0.0	0.0	0.0	2.6				0.6	0.3	1.0

D: Differences only
D/S: Differences first, concluded with similarities
S: Similarities only
S/D: Similarities first, concluded with differences
I: Interspersion of differences and similarities.

Summary: The L group yielded more S/D sequences while the H group produced more I sequences. With increasing difficulty from questions one to three to questions four to six there seemed to be a slight increase of I sequences over S/D sequences by the L group, however, the H group yielded mainly I sequences in questions one to six. For question seven the S/D sequence occurred most often with the D sequence coming in second for both H and L groups. However, besides the S/D and D sequences, question seven also evoked a D/S sequence from the L group but an I sequence from the H group. All groups employed D sequences only in answering question eight. There appears to be a transition as the questions become more difficult, from reliance on differences to reliance on similarities to reliance on interspersion as indicated by the use of more S/D sequences than D/S sequences by the L group, with no D/S sequences, few S/D sequences and mainly I sequences by the H group.

The above transition may be the beginnings of the concept formation stage. In the process of concept formation, Vygotsky (1962) claims that there are three basic stages subdivided into several stages: the syncretic image, thinking in complexes and true concepts. The ability to associate objects by contrast (which develops before the ability to make associations by similarities, Church, 1961) occurs early in the complex thinking stage. As the child develops the ability to also speak of similarities the relations may be between single elements—nothing more—with all attributes mentioned being functionally equal. The interspersion sequence indicates that the subject fluctuates from using "similarity" statements to "difference" statements and back to "similarity" statements again; a kind of a transition from synthesis to analysis to synthesis. Concept formation requires a series of synthesizing, analyzing and synthesizing to enable abstractions to occur for making generalizations (Vygotsky, 1962). The changeable behavior in the subject's "interspersion" sequence may be an indication of the initial stages of concept formation. It should be noted here that it is the subjects who later (Table 4.10) indicate more conceptual behavior in the quality of responses, who employ the greater number of interspersion sequences in the organization for the task. The tendency to use only D sequences in questions seven and eight may be accounted for by the fact that these are the most difficult questions and the subjects are reverting back to speaking of differences rather than similarities. Church (1961) and Vygotsky (1962) agree that the ability to speak of differences develops before the ability to speak of similarities.

The mean number of statements referring to differences and the mean number of statements referring to similarities were calculated for questions one to three, four to six, seven and eight for each sub-group. Table 4.4 presents the mean number of statements specifying differences and similarities.

Observations:

1. All sub-groups tend to use statements specifying similarities, however, all sub-groups employ more statements specifying differences than those specifying similarities.

2. As the questions increase in difficulty the number of statements specifying similarities decrease. By question eight there

Table 4.4

Mean Number of Statements Specifying Differences and Similarities
for Questions 1-3, 4-6, 7 and 8 by Sub-Group

Sub-Group	Questions 1-3		Questions 4-6		Question 7		Question 8	
	Differences	Similarities	Differences	Similarities	Differences	Similarities	Differences	Similarities
L ℓτ	17.66	8.66	18.33	7.66	2.3	1.0	4.0	0
L oτ	11.66	19.0	9.3	5.33	3.66	.33	3.3	0
H ℓτ	25.33	18.6	17.0	9.66	3.33	.33	3.6	0
H oτ	56.0	24.0	33.0	25.66	5.66	4.0	8.0	0

are no similarity statements.

3. In all groups of questions and in questions seven and eight the H group produced more statements specifying similarities than the L group.

4. For questions one to three the ℓτ sub-groups yielded fewer similarity statements than the οτ sub-groups within their socio-economic group.

5. For questions four to six, and in question seven, the H οτ sub-group yielded more similarity statements than the ℓτ sub-group. The L ℓτ sub-group employed more similarity statements than the L οτ sub-group, however, the proportion of "similarity" statements to total number of statements for questions four to six is greater for the L οτ sub-group than for the L ℓτ sub-group. This latter observation cannot be made for question seven.

6. For question eight all subjects employed "difference" statements.

Summary: All subjects tended to use statements specifying similarities but as the questions increased in difficulty the similarity statements decreased and were replaced by difference statements. For questions one to seven the H group yielded more similarity statements than the L group. The οτ sub-groups in both the H and L groups produced more similarity statements than the ℓτ sub-groups. The above information suggests that the H group is further developed than the L group and the οτ sub-groups are ahead of the ℓτ sub-groups within the socio-economic groups in the transition from the reliance on specifying differences to specifying similarities. The ability to specify differences develops before the ability to specify similarities (Church, 1961; Vygotsky, 1962).

2. Quantity and Quality of the Abstracted Features

> Comparison and contrast involves the abstraction of common features; the criterial properties of the stimuli. This category was concerned with the total number of common features which the subjects abstracted in relating two or three stimuli and with the categories of meaning the features respresented. (Siemens, 1973, p. 139)

In other words, this included the complete oral language sample, i.e., all the statements specifying similarities and/or differences elicited from each subject in the comparison and contrast task.

Quantity of abstracted features. Table 4.5 shows the number of abstracted features by each subject for each question. Table 4.6 indicates the mean number of abstracted features in each of the eight questions by group.

One of the patterns the mean scores indicated was in the differences in total number of abstracted features among the eight questions. By question: question three yielded the highest mean score of abstracted features for all groups; questions one, two, four, and five have relatively similar mid-range mean scores and questions six, seven and eight produced the lowest mean scores. The numerous parts of the truck and the bus, i.e., wheels, windows, windshield, seats, lights, hub cap, gas tank, etc., may account largely for the high mean score in question three (Siemens, 1973). The few responses in question six may be explained by Vygotsky (1962) who stated that the ability to speak about abstract concepts is tentative before age thirteen. Piaget and Inhelder (1969) report

Table 4.5

Total Number of Abstracted Features
by Subject and Question

Group	Subject	Question								
		1	2	3	4	5	6	7	8	Total
L ℓτ	1	7	7	11	13	9	4	3	4	58
L ℓτ	2	5	7	6	7	6	2	3	3	39
L ℓτ	3	12	15	17	14	16	8	4	6	92
L oτ	1	2	4	7	6	3	4	4	4	34
L oτ	2	8	6	7	5	4	4	4	3	41
L oτ	3	6	7	6	9	5	4	5	4	46
H ℓτ	1	13	14	23	19	11	10	3	6	99
H ℓτ	2	7	10	16	8	5	6	2	3	57
H ℓτ	3	12	18	22	9	10	5	5	4	85
H oτ	1	22	22	33	29	10	10	12	6	144
H oτ	2	21	23	57	32	34	10	10	5	192
H oτ	3	21	17	25	15	25	9	6	9	127

Table 4.6

Mean Number of Features Abstracted by Sub-Group

	Question								
Group	1	2	3	4	5	6	7	8	Total mean per group
L ℓτ	8,0	9.6	11.3	11.3	10.3	4.6	3.3	4.3	63
L oτ	5.3	5.6	6.6	6.6	4.0	4.0	4.3	3.6	40
H ℓτ	10.6	14.0	20.3	12.0	8.6	7.0	3.6	4.3	80
H oτ	21.3	20.6	38.3	25.3	23.0	9.6	9.3	6.2	154

that ability to operate from the point of view of others is suggested to be only fully realized at approximately age twelve which may resolve the few responses in questions seven and eight. Siemens (1973) reported a similar pattern as mentioned above in her study.

Another pattern indicated that the mean scores of the higher socio-economic groups were consistently higher for all the questions than the mean scores of the lower socio-economic groups. Furthermore the mean score of the $H_{o\tau}$ sub-group is considerably higher in all questions than those of any other group. The mean score of the $H_{\ell\tau}$ sub-group is higher than that of either the $L_{o\tau}$ or $L_{\ell\tau}$ sub-groups with the exception of questions five and seven. The $L_{o\tau}$ sub-group is lower than the $L_{\ell\tau}$ sub-group in all questions except question seven which deals with the point of view, where the mean score of sub-group $L_{o\tau}$ is higher than the mean score of the $H_{\ell\tau}$ sub-group.

Siemens did not report a difference in the total number of responses from her groups. It should be noted that her groups were established according to age, and ability to use language (average and high language users). All were of similar intelligence. In the present study the groups were established by socio-economic and experiental background with different intelligence ranges in each group. The differences in the number of responses from the groups in the present study may be accounted for by different backgrounds of the groups. Studies (Labov, 1964; Loban, 1963, 1966a, 1967; Labercane, 196) indicate that children of lower socio-economic background do not have as great a repertoire of words as those of higher socio-economic background. Other studies (McCarthy, 1950; Smith, 1961; Olsen, 1965; Dechant, 1970) seem to concur that making excursions and travelling aid in building vocabulary and increasing a child's repertoire of words.

That the $L_{o\tau}$ sub-group yielded fewer responses or less language than the $L_{\ell\tau}$ sub-group is obvious throughout the study. A limitation of this study is the small sample and the findings may be influenced by this small number and the individual characteristics of the sample. Furthermore, from the investigator's subjective observations it may be noted that the three subjects who made up the $L_{o\tau}$ sub-group and $H_{o\tau_3}$ seemed to indicate a lack of interest in the oral language task. Yes, they were willing to participate, however, they seemed satisfied to perform at the minimum in quantity, whereas the majority of the other subjects consciously and verbally expressed the desire to produce at maximum, e.g. they were pleased that there was no time limit or they would say, "Have I used as much tape as 'Joe'?". Such actions seemed to suggest motivation to provide as much 'language' in quantity as possible. In addition the questionnaires may not have provided enough information to separate the groups into two distinct experiential background groups since it asked only for travelling and reading experiences. Yet there may be other experiences the $L_{\ell\tau}$ sub-group had that also provided for learning and using language. Dewey (1930's) held and Bloom (1964) would agree that every experience lives on in further experience and has a powerful effect on the child's performance.

The results also revealed, however, that the $L_{o\tau}$ sub-group produced more responses for question seven than either the H ℓτ or L ℓτ sub-groups. The postulation is made that the ability to talk about the point of view of others has not been as fully realized by the subjects in the H ℓτ and L ℓτ sub-groups as by the subjects in the L oτ sub-groups. This ability seems to be influenced by many and varied experiences (Dechant, 1970).

In quantity of abstracted features the higher socio-economic groups, particularly the often-travel sub-group provided a greater number than the lower socio-economic groups. In the lower socio-economic groups it was for questions seven and eight only, the most complex questions, that the often-travel sub-group exceeded the little travel sub-group in number of abstracted features. In the little-travel sub-group the subject in the highest intelligence range was the only subject from the lower socio-economic area who supplied a greater number of abstracted features in six out of eight questions than the total group mean and in all of the eight questions than his socio-economic group mean. Table 3.2 shows that this subject seems to read more books and has more magazines in his home than any other subject in his socio-economic group.

Research (McCarthy, 1950; Loban, 1963, 1966a, 1967) reveals that the repertoire of words used is indicative of language maturity. Siemens (1973) observed that it was mainly for questions six through to eight, the more complex questions, that her older average and older higher language users (described in Chapter II, page 23) provided a greater number of abstracted features than her younger average and younger higher language users. Labov (1964), Loban (1966a), Bernstein (1967) seem to support the view that the lower socioeconomic child uses less language than the higher socioeconomic child. Olsen (1965), Brunner (1965) and Dechant (1970) point to evidence that travelling and reading experiences aid a child in developing language competency. Carroll's (1960) investigation suggests that the greater number of responses may be a result of higher intelligence.

Quality of abstracted features. The features abstracted by the subjects in each question were classified into categories of meaning. For example, all features referring to color were placed under the color category, those referring to shape under shape etc. and were called "categories of meaning". If specified parts of stimuli were spoken of they were listed under "part-whole relations". Features which were not represented by common categories of meaning were listed under "other attributes". Thus the investigator compiled and tabulated lists of all the categories of meaning, other attributes, and part-whole relations as identified by Siemens' subjects. In the present study a category of meaning, other attribute or part-whole was on occasion added when Siemens' lists did not have them since her subjects had not made reference to them. For example, for question one "construction" was added to category of meaning; "difficult to open" was added to question two under other attributes; and "sun roof" was added under part-whole for question three. Table 4.7 shows how Siemens organized the categories of meaning and criterial properties for question one. For each of the eight questions similar lists of other categories of meaning and the other criterial

Table 4.7

Categories of Meaning and Other Criterial Properties: Jelly Beans and Bell

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Category of Meaning

- color
- shape
- size
- texture
- composition
- weight
- smell
- sound
- use
- function
- construction (added)

Other Attributes

- solid
- transparent
- shiny
- breakable
- cost
- where obtained
- connotative
- difficult to open (added for question two: jelly beans and powder)

Part-Whole

- top of object
- rings on bell
- contents
- bottom of containers
- number on lid
- marks on bell
- price
- sun roof (added for question three: truck and bus)

Original from: Siemens, E., Description: Measure of children's language power. Master's thesis, University of Alberta, 1973. Table 5.27, p. 147.

properties were prepared as identified by Siemens' subjects in abstracting common features of the stimuli.

The analysis focussed on the qualitative nature of the categories of meaning and other criterial properties. The analysis was directed at the developmental levels within the concrete-abstract dimension of the identified categories of meaning and other criterial properties. Siemens established three classes or levels to differentiate growth along the concrete-abstract continuum. The following classes were established and the criteria for each are provided.

(a) Perceptible (concrete)

The categories of meaning and the other criterial properties that tended to remain with the "immediate, surfacy, aspects" (Olver and Hornsby, 1966, p. 73) of the stimuli such as shapes, colors, sound and sizes were classified as perceptible, e.g., question one (bell and jar of jelly beans), "one's got a handle; the other doesn't."

(b) Functional

When the categories of meaning and the other criterial properties indicated what a stimulus can do or what one can do with it (Maccoby and Modiano, 1966, p. 258) were classified as functional, e.g., question one (bell and jar of jelly beans), "one you can eat."

(c) Conceptual

The categories of meaning and the criterial properties which indicated that the speaker could go beyond the stimulus to the nature of the setting of the stimulus in a broader domain were labeled conceptual. Ability to go beyond the stimulus indicates growth toward ability to speak about abstract concepts and operate with concepts (Vygotsky, 1962; Gagné, 1971), e.g., question five (theater, school), "In both places you have to pay to get in, one way or another."

Reichard, Schneider and Rapaport (1944), Olver and Hornsby (1966) and Maccoby and Modiano (1966) seem to agree that younger children (up to about seven years) use perceptible or concrete characteristics or terms. As they grow older (about eight or nine) they use functional terms (the use of a stimulus or how it can be used) and finally the conceptual which is the mature level of thinking. Six year olds tend to use more perceptible characteristics, the functional classification seems to reach its peak in children eight to nine years old and by eleven or twelve children utilize the conceptual level.

The responses of the individuals were listed and categorized according to Siemens' classifications for each question. Each response was labelled perceptible, functional or conceptual.

The lists of different categories of meaning and criterial properties varied in length from one question to another. For example, the number of different categories of meaning and criterial properties for each question were as follows:

Question 1 - 22
Question 2 - 29
Question 3 - 48
Question 4 - 24
Question 5 - 51
Question 6 - 18
Question 7 - 13
Question 8 - 16

Further analysis indicates that a relatively small percentage of the identified categories of meaning and criterial properties were noted by the four groups. Table 4.8 presents the summary of categories of meaning and criterial properties noted by the four groups and substantiates the above statement. In Siemens' study another notable trend in the summary indicated that the range of categories of meaning identified by the four groups was limited to mainly color, function, use, and part-whole relations. In addition to those identified in Siemens' research, the present study indicated that "composition" (what the stimulus was made of) was another category frequently identified by the four groups. Apart from the part-whole relations, use and function were of the most frequently identified categories of meaning. Siemens reported similar results and claimed the finding would be supported by Olver and Hornsby (1966) who suggest there is development from perceptible to functional to conceptual thinking. Furthermore, these findings also suggest that functionalism is not only prevalent at ages eleven and twelve years (Siemens, 1973) but also at thirteen.

In the present study a further survey was made concerning the categories of meaning not noted by the four groups but noted by the high socio-economic groups or by the low socio-economic groups. Table 4.9 is a summary of that survey. Table 4.9 indicates that the four subgroups identified forty categories of meaning. The information in Table 4.9 indicates that the high socio-economic group identified forty-five more categories of meaning of which 36% were at both the functional or conceptual level. The low socio-economic group identified five more categories of meaning of which 20% were at

Table 4.8

Summary of Categories of Meaning
Noted by the Sample

Question 1	Question 2	Question 3	Question 4
composition sound function F use F Part-whole: top of object contents printing on top	color composition function F use F Part-whole: top of jar contents printing on top	use F run by motor C Part-whole: windows wheels	color composition function F use F construction C Part-whole: laces name on it
Question 5	Question 6	Question 7	Question 8
function F cost C people F Part-whole: seats	definition - birthday C definition - marriage C celebration C presents	size unfamiliarity C	slippers feel more comfortable C slippers are more comfortable C boots hot, sweaty C boots uncomfortable C

If no letter follows the response it is considered perceptible.
F - functional
C - conceptual response.

Table 4.9

Categories of Meaning Not Noted by Entire Sample But Noted by H Group or by L Group

Question 1	Question 2	Question 3	Question 4
H color H shape H construction F H transparent C Part-whole: H rings on bell	H shape H sound H difficulty in opening C Part-whole: H printing on bottom H symbols on jar H French & English printing	H shape H size H class name C H name on vehicle H number of units L composition Part-whole: H lights H doors H bumpers H seats H steering wheel H greyhound symbol H mud flaps F H hitch F H compartments F	H size L shape Part-whole: H lines on edge H tongue H stitching F L stripes L holes for laces

Question 5	Question 6	Question 7	Question 8
H use F H enjoyable C H restriction/freedom C H rooms H doors	H how celebrated H food & drink H people invited H happy occasion C	H color L uses C H accessibility C	H warmth C H function C H distractible (smell, sound) H feel embarrassed C

H - High socio-economic group.
L - Low socio-economic group.
F - Functional response.
C - Conceptual response.
If no letter follows it is perceptible response.

both the functional or conceptual level of response. These findings suggest that in this study the higher socio-economic child identified not only more categories of meaning but also made relatively more functional and conceptual level responses than the lower socio-economic child.

In order to indicate the distribution of the number of perceptible, functional and conceptual categories communicated by each subject for each question the following was done. The total number of different categories of meaning and other criterial properties identified by the individual in each question and the distribution of the number of perceptible, functional and conceptual categories were tabulated in Table 4.10. The percentage of conceptual categories in each question was calculated and is also shown in Table 4.10. The pattern appearing indicates that as the questions increase in complexity the percentage of conceptual categories also increases. Question seven, the point of view question, is the exception since the percentage in question seven is lower than the percentage in question six. Elementary children will revert to a lower level of thinking when more complex propositions are presented (Ausubel, 1963). The above pattern substantiates Siemens' findings that conceptual responses increase as the questions become more complex. The information in Table 4.10 also shows that all subjects used conceptual categories and that the H group communicated more conceptual categories sooner in the arrangement of the questions than the L group.

To summarize the information in Table 4.10 the mean number

Table 4.10

Number of Different Categories of Meaning and Criterial Properties: and Perceptible, Functional and Conceptual Categories by Subject and by Question

		Subject												
Question		$L\ell\tau_1$	$L\ell\tau_2$	$L\ell\tau_3$	$Lo\tau_1$	$Lo\tau_2$	$Lo\tau_3$	$H\ell\tau_1$	$H\ell\tau_2$	$H\ell\tau_3$	$Ho\tau_1$	$Ho\tau_2$	$Ho\tau_3$	
1.	Perceptible	3	4	7	2	5	1	6	4	7	10	10	6	
	Functional	2		2		1	2	2	1	2	3	3	3	
	Conceptual						1			1	2	1		(5.5%)
	Total	5	4	9	2	6	4	8	5	10	15	14	9	
2.	Perceptible	4	5	4	3	3	6	7	6	7	10	10	10	
	Functional		1	4				2	3	2	1	3	2	
	Conceptual	1	1		1	1	1			3	1			(7.07%)
	Total	5	7	8	4	4	7	9	9	12	12	13	12	
3.	Perceptible	8	2	9	4	4	1	7	4	13	18	18	13	
	Functional	1	2	1	1	1	1	3	1	1	1	8	2	
	Conceptual		1	3		1	1	2	5	3	2	2	5	(16.8%)
	Total	9	5	13	5	6	3	12	10	17	21	28	20	
4.	Perceptible	7	4	6	5	3	4	7	4	2	7	11	4	
	Functional	2	1	2	1	1	1	3	2	1	6	4	3	
	Conceptual	2	1	1			3	2	2	2	2	3	1	(17.3%)
	Total	11	6	9	6	4	8	12	8	5	15	18	8	

Table 4.10 (continued)

Question		Subject												
		$L\ell\tau_1$	$L\ell\tau_2$	$L\ell\tau_3$	$Lo\tau_1$	$Lo\tau_2$	$Lo\tau_3$	$H\ell\tau_1$	$H\ell\tau_2$	$H\ell\tau_3$	$Ho\tau_1$	$Ho\tau_2$	$Ho\tau_3$	
5.	Perceptible	2		8	1			1	1	2	2	17	17	
	Functional	1	2	4	2	2	4	4	3	3	5	2	4	
	Conceptual	4	4	1		2		2	1	4	3	7	4	(26.4%)
	Total	7	6	13	3	4	4	7	5	9	10	26	25	
6.	Perceptible	2		4	1	1		6	1	2	3	4	3	
	Functional													
	Conceptual	2	2	3	3	3	4	2	5	3	6	4	4	(60%)
	Total	4	2	7	4	4	4	8	6	5	9	8	7	
7.	Perceptible	1		1	3	4	2	1	1	2	2	2	2	
	Functional													
	Conceptual	1	2	3			3	1		1	4	2	2	(47%)
	Total	2	2	4	3	4	5	2	1	3	6	4	4	
8.	Perceptible			1			1	1			1		3	
	Functional													
	Conceptual	3	3	4	4	3	3	4	3	4	5	5	5	(86%)
	Total	3	3	5	4	3	4	5	3	4	6	5	8	

of perceptible, functional and conceptual categories of each subject were calculated. Table 4.11 shows the mean number of perceptible, functional and conceptual categories by subject and by group. The pattern emerging in the information in Table 4.11 indicates that in quantity the high socio-economic groups communicate more perceptible, functional and conceptual categories than the lower socio-economic groups. This also indicates with regard to quality that since the high socio-economic group provides more conceptual responses than the low socio-economic group, the high socio-economic group employs more conceptual behavior than the low socio-economic group. In all cases the H οτ sub-group has a greater total number in each of the categories than the other sub-groups. The total number of each of the categories is greater for the H ℓτ sub-group than the L οτ and L ℓτ sub-groups. The L ℓτ sub-group has a total in each of the categories greater in number than the total for each in the L οτ sub-groups. The total number of perceptible, functional and conceptual categories by subjects of L ℓτ and L οτ sub-groups was recorded and the ratio of conceptual categories to the total number of categories was calculated. The results of this calculation follow:

L ℓτ — Ratio of conceptual categories to total number of categories — .27

L οτ — Ratio of conceptual categories to total number of categories — .34

These results indicate that although the L οτ sub-groups provided fewer categories in total they provided slightly more conceptual categories in proportion to their total number of categories than the L ℓτ sub-group did.

Table 4.11

Mean Number of Perceptible, Functional and Conceptual Categories Employed by Each Subject

Sub-group	Subject	Perceptible Category	Functional Category	Conceptual Category
	1	3.37	.75	1.37
L ℓτ	2	1.87	.75	1.75
	3	5.0	1.6	1.87
	1	2.37	.50	1.0
L oτ	2	2.5	.62	1.25
	3	1.87	1.00	2.00
	1	4.5	1.75	1.62
H ℓτ	2	2.62	1.25	2.0
	3	4.37	1.12	2.62
	1	6.62	2.0	3.12
H oτ	2	9.0	2.5	3.0
	3	7.37	1.75	2.62

Table 4.11 also shows that within each group, with the exception of sub-group H oτ, as the intelligence score increases the number of conceptual categories also increases.

In summary, according to the number of conceptual categories, the higher socio-economic group indicated more conceptual behavior than the lower socio-economic group. The H oτ sub-group yielded the most conceptual categories and the H ℓτ sub-group produced more than either the L oτ or the L ℓτ sub-groups. Although the L oτ sub-group yielded fewer conceptual categories in total than the L ℓτ sub-group, when the ratio of conceptual categories to the total number of categories is calculated the L oτ sub-group has a higher ratio of conceptual categories to the total number of categories than the L ℓτ sub-group. Furthermore, the higher the intelligence the more conceptual behavior occurred within each group, with the exception of sub-group H oτ.

To support what this study seems to suggest, reference will be made to information related to conceptual behavior. Dechant (1970) reasons that the process of thinking in an abstract way is called concept-realization and the end result is a concept; and adds that a word is the verbal expression of a concept. Siemens (1973) refers to this conceptual behavior as "depth of word meaning" (p. 286) or it may be quality of vocabulary. Carroll (1967) and Gagné (1967) seem to concur that a lack of concepts which may be due to a dearth of experiential background (Carroll, 1967; Dechant, 1970) may lead to a paucity of quality in vocabulary. Hill and Grammattio (1963) found that children from higher socio-economic homes perform above children from lower socio-economic background in vocabulary. Bernstein (1967) contends that the lower and working class child will tend to use language associated with concrete content.

The present study seems to support the above in the postulation that children from higher socio-economic backgrounds are more likely to use language indicative of conceptual or abstract thinking than a child from a lower socio-economic home. Furthermore, the results appear to indicate that the child with more travelling experience uses more conceptual behavior than the child with little travelling experience. In addition to the above, the study lends substance to the concept that if the child is not of a higher socio-economic background and has not travelled much the higher his intelligence the better he is able to extract from his experiences that which seems to aid in developing quality in vocabulary. Loban (1963) found the highest correlation between intelligence and vocabulary. In Siemens' (1973) study it was her older and better language users who indicated more conceptual behavior than the younger and average language users. The investigator suggests that according to the number of conceptual categories and with evidence from information above, that the subjects of higher socio-economic background, often travel and high intelligence are better language users than the subjects of the lower socio-economic area, little travel and lower intelligence scores.

3. The Expression of the Relationships Among the Abstracted Features

This category was established to discover the ways in which the subjects expressed the relationships among the abstracted features. Siemens (1973, p. 159) claims that the expression of relationships involves both the concrete-abstract dimension and the implicit-explicit dimension, perception of the relationships of the abstracted features in objects and events, and the expression of the interconnection of the abstracted features in words and sentences. She established three classes for analyzing the individual responses concerning abstraction of features, seeing relationships among the abstracted features, and speaking of the relationships among the abstracted features. The three classes were: listed abstracted features, reduced comparisons, and statements of comparison.

Listed abstracted features. This response reflected a tendency to note only isolated features and not the common features of the stimuli. If the subject noted a particular property in one of the stimuli and there was no indication that it was noted in the other stimulus, or stimuli, the statement was considered to be listing a discriminating isolated feature, not a common feature. For example, in question four, one response was "one has fur inside for the winter." A similar feature was not noted for the shoe or slipper. This statement was classified as listed abstracted feature.

Each response which indicated the presence of an attribute in one of the objects and not in the other was recorded as listed abstracted features and the total number of listed abstracted features was tabulated in each question.

Reduced comparisons. When the statement of comparison implied that common features had been identified within the stimuli and indicated the relationship through the use of a relational term, but referred to only one stimulus or two in case of the multiple comparison, and did not specify the other stimulus, or stimuli, this response was classified as reduced comparison. An example of a statement assigned to this class was drawn from question one (bell and jar of jelly beans): "The bell has a higher sound." The question that this statement raised is, a higher sound than what? Reduced comparisons indicated that common features had been noted. Therefore, Siemens (1973, p. 164) claimed that they pointed to implications in speech behavior rather than limitations in perception and selection. The use of relational terms suggested growth in the direction of explicitness in the area of language structure.

The individual statements of comparison which matched the criteria established for reduced comparisons were tabulated for each question.

Statements of comparison. This class included the statements which stated that common features had been discriminated and specified in two or three stimuli. These statements pointed to the specific stimuli from which the common features had been abstracted. The individual responses that indicated that a common feature had been discriminated and specified in two or three stimuli were recorded as statements of comparison and the total number of statements of comparison was tabulated for each question.

In Table 4.12 is shown the number of listed abstracted

Table 4.12

Number of Listed Abstracted Features, Reduced Comparisons and Statements of Comparison by Subject and by Question

Group	Subject	Question																							
		1			2			3			4			5			6			7			8		
		Listed Abstracted Features	Reduced Comparisons	Statements of Comparison	Listed Abstracted Features	Reduced Comparisons	Statements of Comparison	Listed Abstracted Features	Reduced Comparisons	Statements of Comparison	Listed Abstracted Features	Reduced Comparisons	Statements of Comparison	Listed Abstracted Features	Reduced Comparisons	Statements of Comparison	Listed Abstracted Features	Reduced Comparisons	Statements of Comparison	Listed Abstracted Features	Reduced Comparisons	Statements of Comparison	Listed Abstracted Features	Reduced Comparisons	Statements of Comparison
L ℓτ	1	2	1	3	2		4			9	10		3	2		7			4	1	2		3		1
	2	2		3	1		6		4	3	1		6		2	4			1	2		1		2	1
	3	1		8	1	2	11	5		12	3		11	1	1	13			7			4	1	1	3
L oτ	1			2			4	1		5	2		4	1		2			3		1	3			1
	2	1		6			6		1	6	1		4			4			3			4			1
	3		1	3			7			7	2		6			4	1		1	1	2	2	1	2	2
H ℓτ	1	4		7	6	1	7	10		13	4		15	3		8	1		3		2	1	2	1	4
	2	1		6			10			15			9			5			5			4	1	3	2
	3	1		10	1		16			18	1		8			13			3	1		2	4		1
H oτ	1	6		17			19	4	2	22	6		14	1		8	4	2	6	3	2	6	4	1	1
	2	2	1	16		2	21	5	1	48	14		17			32	2		9	1		7	2		3
	3	2		19			15			25	5		10			29			7		4	2	4	4	2

features, reduced comparisons and statements of comparison by subject and by question. Table 4.13 shows the mean number of listed abstracted features by group and by question. The mean number of reduced comparisons by group and by question is tabulated in Table 4.14 and the information in Table 4.15 indicates the mean number of statements of comparison by group and by question.

The information in Tables 4.13, 4.14 and 4.15 indicates that there are few mean number of listed abstracted features and reduced comparisons when compared to mean number of statements of comparison. Siemens (1973) reported a similar pattern which she claimed indicated that generally the subjects were able to abstract common features in a comparison task.

The summary of Table 4.13 indicates that question four, the multiple comparison question, seems to have provoked more listed abstracted features than any other question. An implication that can be made from Table 4.13 is that the H groups tended to communicate more listed abstracted features than the L groups. Siemens (1973) observed that the tendency to use listed abstracted features suggested less proficiency in language. The greater number of listed abstracted features by the H group may be accounted for by the much greater total number of expressions of relationships by the H group as disclosed in Table 4.13 or by individual characteristics of the small sample.

With reference to Table 4.14 the groups do not tend to differ significantly in mean number of reduced comparisons. Probably the only point that may be noted is that for questions six, seven, and

Table 4.13

Mean Number of Listed Abstracted Features by Sub-Group and by Question

	Group			
Question	L ℓτ	L oτ	H ℓτ	H oτ
1	1.6	.3	2.0	3.3
2	1.6	0	2.0	.3
3	1.6	.3	3.3	4.0
4	4.6	1.6	1.6	8.3
5	1.0	.3	1.0	1.0
6	0	.3	.3	2.0
7	1.0	.3	.3	1.3
8	1.3	.3	2.3	3.3

Table 4.14

Mean Number of Reduced Comparisons by Sub-Group and by Question

	Group			
Question	L ℓτ	L oτ	H ℓτ	H oτ
1	.3	.3	.3	.3
2	.6	0	0	.6
3	1.3	.3	0	1.0
4	0	0	0	0
5	1.0	0	0	0
6	0	0	0	.6
7	.6	1.0	.6	2.0
8	1.0	.6	1.3	1.6

Table 4.15

Mean Number of Statements of Comparison
by Sub-Group and by Question

Question	Group			
	L ℓτ	L oτ	H ℓτ	H oτ
1	4.6	3.6	7.6	17.3
2	7.0	5.6	11.0	18.3
3	8.0	6.0	12.0	31.3
4	6.6	4.6	10.6	13.6
5	8.0	3.3	8.6	22.3
6	4.0	2.6	3.3	7.6
7	1.6	3.0	2.6	5.0
8	1.6	1.3	2.3	3.0

eight (the most complex questions) the H sub-groups have a greater mean number of reduced comparisons than the L sub-groups. Siemens (1973) claimed that since reduced comparisons involved the use of relational terms, their employment points to greater proficiency in language. The Reduced Comparisons columns on page 107 disclose that the $H_{o\tau}$ sub-group and the subjects in the higher intelligence ranges of the other sub-groups tended to use more reduced comparisons than the $H_{\ell\tau}$ sub-group or subjects in lower intelligence ranges.

Siemens (1973) reasoned that the frequency of statements of comparison indicated growth in language competence in the use of labels, relational terms and in language structure. The information in Table 4.15 illustrates that the H groups employed more statements of comparison than the L groups in all the questions. The $H_{o\tau}$ sub-group provided considerably more than any other group. Again the $L_{o\tau}$ sub-group as with listed abstracted features and reduced comparisons employed the smallest number of statements of comparison except in question seven (the point of view question). The mean number of statements of comparison for question seven by the $L_{o\tau}$ sub-group was higher than for either the $L_{\ell\tau}$ or $H_{\ell\tau}$ sub-groups. On page 107 the statements of comparison columns indicate that all the subjects in the $H_{o\tau}$ sub-group and the subjects with the higher intelligence scores in the $L_{\ell\tau}$ and $H_{\ell\tau}$ sub-groups used more statements of comparison than the subjects with the lower intelligence scores, lower socio-economic groups or little travel groups.

The findings in this study disclose that all subjects in all groups utilized a limited number of listed abstracted features and reduced comparison when compared to number of statements of comparison. There appears to be a pattern that the subjects in the upper intelligence ranges of both sub-groups, but particularly in the lower socio-economic group, use fewer listed abstracted features, but more reduced comparisons and statements of comparison than the subjects in the lowest intelligence range. This pattern was evident in the higher socio-economic group in number of listed abstracted features but not in number of reduced comparisons and statements of comparison since all the subjects in the $H_{o\tau}$ sub-group yet none in the $H_{\ell\tau}$ sub-group exceeded that of the total group mean in the number of the latter two expressions of relationships. Siemens (1973) cited evidence that a lack of listed abstracted features, a greater number of reduced comparisons and statements of comparison were demonstrated by her older higher language users.

The statements of comparison were subdivided into three categories:

(i) Use of relational terms.

When relational terms were used to make the comparison, the statements were classified as an expression of relationship employing relational terms. Some examples of statements assigned to this class were as follows:

Question two (bell and jar of jelly beans):

"The one jar is a lot *smaller than* the other."

"They *both* contain something."

"The container with the powder is about *half as heavy* as the glass one."

The underlined words are classified as relational terms.

(ii) Use of comparative words.

In the statements of comparison in which nouns, adjectives, or verbs, singly or in phrases, were used to specify the discriminating features within two, or three stimuli and to show the interconnection of the features in a compound sentence or in one or more simple sentences, the statement was classified in the category of use of comparative words. Some examples assigned to this class were as follows:

Question four (shoe, boot and slipper):

"They are different colors." ("they" and "color" refer to the three stimuli.)

Question four (shoe, boot and slipper):

"They all have a sole so they won't wear out." ("they" refers to the three stimuli.)

Question five (school and theater):

"In school you have to write things and in the theater all you do is watch."

The underlined words represent the words which specified the discriminated difference or similarity in the common features within two, or three, particular stimuli.

(iii) Other.

The third category was the statement of comparison in which only one of the common features was specified, or two, and the other was implied. For example, the statements "the jar has writing all over the top and this one doesn't" and "one's got a handle and the other doesn't" were included in this category. Usually the sentences were compound or simple sentences.

Siemens (1973) reported that statements of comparison indicate (a) ability to perceive, select and abstract common features in two or three stimuli, (b) growth in language competence in the use of labels and relational terms and (c) growth in language structure. The degree of explicitness in speech behavior is dependent on the label for the comparative words and relational terms available to the child and the use of them in sentences.

The total number of comparisons in each question in which one or more of the three criteria for statements of comparison: relational terms, comparative words and other, were used by the individual were recorded and tabulated as statements of comparison. In addition, the individual's total number of statements of comparison in each question utilizing relational terms and the total number of statements of comparison in each question utilizing comparative words were recorded and tabulated under the separate headings, "relational terms" and "comparative words".

In Table 4.16 is shown the mean scores for each question of total number of statements of comparison, the total number of statements of comparison which utilized relational terms and the total number of statements of comparison which utilized comparative words. Patterns that appear in the mean scores regarding total number of statements of comparison can be demonstrated in this summary. In all the questions with the exception of question eight, the mean scores for the H oτ sub-group were significantly higher than any of the other sub-groups. In all the questions with the exception of question seven the mean scores of the H ℓτ sub-group were significantly higher

Table 4.16

Mean Number of Statements of Comparison and Statements of Comparison Utilizing Relational Terms or Comparative Words

Question	Expression of Relationships	Group $L_{\ell\tau}$	$L_{o\tau}$	$H_{\ell\tau}$	$H_{o\tau}$
1	Statements of Comparison	4.7	3.7	7.7	18.0
	Relational Terms	.6	1.0	2.3	2.7
	Comparative Words	1.6	1.7	4.0	9.3
2	Statements of Comparison	5.7	4.3	11.0	18.3
	Relational Terms	2.0	2.7	5.0	7.3
	Comparative Words	2.6	2.7	5.3	8.7
3	Statements of Comparison	7.7	6.0	15.3	31.3
	Relational Terms	5.0	3.3	8.3	11.3
	Comparative Words	2.3	2.7	5.0	13.3
4	Statements of Comparison	6.7	4.7	10.7	13.3
	Relational Terms	1.0	0	1.3	1.7
	Comparative Words	5.0	4.3	7.0	9.3
5	Statements of Comparison	8.0	3.3	8.7	23.0
	Relational Terms	3.7	1.0	3.7	11.0
	Comparative Words	4.0	1.7	4.7	10.7
6	Statements of Comparison	4.0	2.3	3.7	7.3
	Relational Terms	1.7	.7	1.3	2.7
	Comparative Words	2.3	1.7	2.3	4.7
7	Statements of Comparison	1.7	3.0	2.3	5.0
	Relational Terms	.7	.6	1.0	1.3
	Comparative Words	1.0	1.3	1.3	3.3
8	Statements of Comparison	1.7	1.3	2.3	2.0
	Relational Terms	.3	.6	1.0	.3
	Comparative Words	1.3	.6	1.0	1.7

than the mean scores of sub-groups L ℓτ and L oτ. In all the questions with the exception of question seven the mean scores of the L ℓτ sub-group were higher than the mean scores of the L oτ sub-group. The mean scores for the sub-groups H oτ and H ℓτ were considerably higher in question three (truck and bus) in which the stimuli consisted of numerous parts. The lowest mean score for sub-groups H oτ, H ℓτ and L ℓτ occurred in the point of view questions, seven and eight. For sub-group L oτ the lowest mean score occurred in questions six and eight. It was suggested earlier that since questions seven and eight are point of view questions and inasmuch as age twelve is approximately the period when transition from subjective to objective behavior in thought and speech occur (Piaget and Inhelder, 1969) subjects may vary in response to these questions when compared to responses in others.

In summary, there was a wide variation of total number of statements of comparison in the four groups in the various questions. The results indicated that the greater number of statements of comparison were communicated by the H oτ sub-group. The H ℓτ sub-group provided more than the L oτ or L ℓτ sub-groups and the L ℓτ sub-group more than the L oτ sub-group. Siemens' (1973) research suggested that greater language facility was indicated by better ability to perceive, abstract and relate common features in the comparison of two or three stimuli. Another measurement of better language facility, she claimed, was the occurrence of statements of comparison in subjects' responses. The findings of the present study seem to suggest that according to the criteria established by

Siemens (1973) concerning statements of comparison the child from often travel background and especially if he also is from a higher socio-economic home, and the individual with a higher intelligence score regardless of background is better equipped in language than the child from the lower socio-economic home and the child with lower intelligence. These conclusions may be supported with the findings concerning the frequency of reduced comparisons and statements of comparison as indicated by the information in Tables 4.14 and 4.15.

Siemens further claimed that the degree of explicitness in speech behavior is dependent on the labels for comparative words and the relational terms available to the child and the use of them in sentences. This aspect is examined in the following discussion.

Comparative words and relational terms. In the following analysis the focus is the use of comparative words and relational terms in statements of comparison. The frequency of occurrence of comparative words and relational terms as shown in Table 4.16 will be examined and analyzed.

The trends regarding total number of statements employing relational terms and comparative words for each group as shown in Table 4.16 are summarized in these results.

Range of Mean Scores: Total Number of Relational Terms

Group L ℓτ :	.3 - 5.0
Group L oτ :	0 - 3.3
Group H ℓτ :	1.0 - 8.3

Group $H_{o\tau}$: .3 - 11.3

Range of Mean Scores: Total Number of Comparative Words

Group $L_{\ell\tau}$: 1.3 - 5.0

Group $L_{o\tau}$: .6 - 4.3

Group $H_{\ell\tau}$: 1.0 - 7.0

Group $H_{o\tau}$: 1.7 - 13.3

The total number of relational terms utilized by the four groups was lower than the use of total number of comparative words. Sub-group $H_{o\tau}$ utilized considerably more relational terms than did the other groups as indicated by the range of mean scores. The range of mean scores for the $H_{\ell\tau}$ sub-group was higher than for the $L_{o\tau}$ and $L_{\ell\tau}$ sub-groups. The range of mean scores for sub-group $L_{o\tau}$ was the lowest of all the groups. When the upper limits of the mean scores of relational terms are compared to the upper limits of the mean scores for the comparative words, the mean scores for sub-groups $H_{o\tau}$ and $L_{\ell\tau}$ for comparative words are higher than the mean scores of the relational terms. The $L_{o\tau}$ and the $H_{\ell\tau}$ sub-groups score lower in comparative words than in relational terms.

Of the present study one could say in summary: Comparative words were used more frequently than relational terms; the higher socio-economic group used more relational terms and comparative words than the lower socio-economic group. The $L_{o\tau}$ sub-group was the lowest in both the use of relational terms and comparative words. As individuals the subjects with the higher intelligence scores and especially in the higher socio-economic group employed more relational terms than the subjects with low intelligence scores from low socio-economic area. In the number of comparative words the intelligence score did not seem to influence the subjects from the higher socio-economic often travel sub-group. All of them scored above the total group mean. Only one subject with the high intelligence score, in the lower socio-economic group, scored above the total group mean in number of comparative words. When individuals were compared with others of the same socio-economic group it was found that in the lower socio-economic group more subjects with higher intelligence scores than with lower intelligence scores rated above their group mean in both number of relational terms and comparative words. In the higher socio-economic group the subjects in the higher intelligence ranges scored above their group mean in number of relational terms but not in number of comparative words where the entire H OT sub-group but none of the H ℓT sub-group scored above their group mean. Siemens' (1973) study implied that the "older average and high language user" and the "younger average and high language user" (as described in Chapter II, page 23) employ both relational terms and comparative words with more comparative words than relational terms. Furthermore, her study revealed that the older subjects employed more relational terms and comparative words than the younger subjects, the high language user in both age groups tended to yield more relational terms and comparative words than the average language user. Finally the older high language user indicated a tendency to employ considerably more relational terms than any other group.

Analysis of language samples with relational terms and comparative words continued. It was found when reference was made to similarities, relational terms were most often used while comparative words were used more frequently to speak of the differences. The patterns that appeared were similar to the ones Siemens reported. The complexity of the question seemed to determine the variation in kinds of relational terms which were used and the increase in number and the nature of more complex sentences in comparing stimuli in the four groups. Relatively simple sentences were employed in questions one, two, three and five. A greater number of responses in questions three and five seemed to carry more information. Not only did the higher socio-economic groups and those of higher intelligence use more relational terms than the lower socio-economic groups and those of lower intelligence but there also seemed to be indications that more abstract thinking was taking place, a greater vocabulary was used and more information was included. Particularly in the high socio-economic group and in those of higher intelligence was this trend apparent.

"Both", a relational term was most frequently used by all groups. The total number of kinds of relational terms other than "both" were recorded. The mean number of relational terms per group and the total group mean number of relational terms were calculated. The following information indicates the mean number of kinds of relational terms employed by each group.

Group	Mean Number of Kinds of Relational Terms
L ℓᴛ	2.6
L oᴛ	3.6
H ℓᴛ	7.0
H oᴛ	7.6

The pattern indicates that the higher socio-economic groups employ considerably more kinds of relational terms than the lower socio-economic groups. There is also the suggestion that the often travel sub-groups within the socio-economic groups utilize more kinds of relational terms than the little travel sub-groups.

Siemens (1973) observed that her older and higher language user employed a greater variety of relational terms than her younger and average language user.

The following are examples of an increase in kinds of relational terms employed in a comparison of two stimuli and an increase in amount of information carried by statements of comparison from the low socio-economic, little travel group to the high socio-economic often travel group in questions three and five.

Question three (compare the truck and the bus):

L ℓᴛ : "They both have six wheels."

"They both hold people."

"One holds more people."

L oᴛ : "They both transport stuff."

"The greyhound probably goes further distances than the truck."

H ℓτ : "The bus is lower than the truck because you can't have it that high or else the people wouldn't be able to get on it that easy."

"The wheels are way bigger on the truck than on the bus."

"The bus has a lot more seats than the truck because it carries passengers."

H oτ : "There's more windows on the bus than there is on the truck."

"They're both held together by screws on the bottom and top."

"The axles on the bus are closer together than on the truck."

"They both probably have radios and other facilities you know like air conditioning."

Question five (compare a school and a theater):

L ℓτ : "You've got to sit down and pay attention to what's going on in both."

"Both places contain people."

"They're both made of the same material of wood or steel or whatever."

L oτ : "They're both buildings."

"There are usually more people at a theater than in a classroom."

H ℓτ : "You don't really learn as much from a play at a theater than a school."

"There's usually more than one room in both for different purposes—like a school has many rooms for different subjects and a theater has two rooms or more than that; where the show is shown and where the concession or getting into the theater is."

H oτ : "You have to conduct yourself properly in both or else you can either get yourself evicted or sent down to the office."

"In both places you have to pay money to get in one way or another: the theater has, they charge people for the show that they have to see, right out and the prices

> are more expensive, but the school you go to for free in a way but you pay for it in the end because the taxpayers."

With question four, the multiple comparison of the shoe, the boot and the slipper, a few of the subjects even at this age had difficulty in relating the common features of three objects in one comparative statement. There were three basic approaches: attending to each single object in turn, a comparison of two objects and omitting the third and the multiple comparison. Subjects $L\ell\tau_1$ and $Ho\tau_1$ seemed to have the most difficulty. $L\ell\tau_1$ attended mainly to each single object in turn rather than attempting to make multiple comparisons. $Ho\tau_1$ was more successful with multiple comparisons than $H\ell\tau_1$ but there were indications of the tendency to refer to many features of an object before going on to the next object rather than to speak of common features. A number of the subjects, particularly $H\ell\tau_1$, indicated that an attempt was made to compare two objects but omitted the third. The majority of the subjects in the present study were successful in making multiple comparisons. In Siemens' study the younger average language user had more difficulty with the multiple comparisons than the older high language user.

Examples of use of relational terms in question four (compare and contrast the shoe, the boot and the slipper) were:

$L\ell\tau$: "They all contain rubber soles."

"They're all made out of different material."

"Then the slipper is made of leather and then the slipper is all different colors, red, green, blue no yellow and then orange inside—it doesn't have very much—very much fur—just a little and then the shoe it has a cushioned bottom and then it has shoe laces and the winter boot does too."

H ℓτ : "All of them are warm for protecting your feet for all kinds of weather."

"They're all different colors."

H oτ : "One of them is much larger than the rest of them."

"They all seem to have rubber on them somewhere."

"All three of them are used for putting on the feet or you wear them—all three of them."

"You can use them all for running and kicking."

The comparison of a birthday and an anniversary in question six involved a definition of the abstract concepts of a birthday and an anniversary. The only subject who did not attempt a definition was L $\ell\tau_1$ who also had most of the difficulty with the multiple comparison in question four. His comparison was based on the concrete aspects of the two occasions: (1) presents, (2) the number of people involved in each, and one conceptual aspect, that they occur every year. This type of comparison was noted in Siemens' three subjects in the younger groups and in three subjects of the older average language user group. All of the other eleven subjects in the present study attempted a definition. The following examples indicate changes in the definitions of the two concepts from the lower socio-economic group to the higher socio-economic group.

L $\ell\tau_2$: "A birthday is when you were born, what month but a different year and that. An anniversary is where you get married—it's your anniversary."

L $\ell\tau_3$: "A birthday you're celebrating your age—an anniversary you're celebrating how many years you've been married."

$\mathrm{L}\ o\tau_1$: "Anniversary and birthday are something the same; you celebrate it every year, but a birthday is—ah—when you were born and an anniversary is when you were bein' married."

$\mathrm{L}\ o\tau_2$: "An anniversary is the day you got married and a birthday is the day you were born."

$\mathrm{L}\ o\tau_3$: "A birthday celebrates you—your birthday, an anniversary you celebrate like the first—the your wedding anniversary. Or stores have anniversaries the first time they opened up."

$\mathrm{H}\ \ell\tau_1$: "Well a party (birthday) is telling how old you are and an anniversary is telling how old you have t—how long you've been married."

$\mathrm{H}\ \ell\tau_2$: "Birthday is when—is the day when someone was born except it keeps going, every year you've got a birthday. And an anniversary is when two people get married and then the anniversary is on the—on the day they got married for all the rest of the years they'll have an anniversary on that day."

$\mathrm{H}\ \ell\tau_3$: "Similarities between birthday and an anniversary are that both are celebrating how many years you've been living or you've been married."

$\mathrm{H}\ o\tau_1$: "Anniversary is just from the time you for peoples—from the time they got married until you can have an anniversary every year as well—um birthdays—you get the birthday from the day you were born."

$\mathrm{H}\ o\tau_2$: "A birthday and an anniversary are the same because you celebrate on it and they're most likely happy on it, even though they don't celebrate the same thing—marriage and being born."

$\mathrm{H}\ o\tau_3$: "The same things between birthdays and anniversaries is that you both celebrate at them. It (anniversary) tells how long you've been together or (birthday) tells how old you are."

In question seven the requirement was to compare a boot and a slipper from an ant's point of view. All of the subjects' responses suggested an attempt to compare the boot and the slipper from the point of view of an ant. All the subjects with the exception of

H $o\tau_1$, who also indicated some difficulty with the multiple comparison task, were successful in maintaining that point of view throughout the response. H $o\tau_1$ in his response provided many ways in which the ant would compare the boot and the slipper. The responses were descriptive and detailed yet after having said that an ant wouldn't like shoes because "they always get stepped on by them" the statement added was "I don't think—when ants get squished they don't have any blood—at least none that you can see so the—it doesn't leave any marks on the shoes or the boots."

Some examples of use of relational terms in making comparisons of the boot and the slipper from the point of view of the ant were as follows:

L $\ell\tau_1$: "The slipper would be a little smaller and the boot would be a lot bigger."

L $o\tau_2$: "They're really big."

"One is really taller than the other."

"One is bigger than the other."

"One could be more softer than the other."

H $\ell\tau_1$: "I think he'd be more attracted to the slipper because it's got more colors than the boot."

H $\ell\tau_2$: "He'd say that the boot is taller than the slipper and the boot is quite a bit larger than the slipper."

H $o\tau_2$: "One is—seems to be more dangerous than the other 'cause 'um well it's larger."

"They have different colors on the bottom."

"One of them has a—is higher and gives more support than the other one does."

"One is harder to get into—like to chew into."

In the last question subjects were requested to compare the boot and the slipper from the point of view and feeling of father while reading the newspaper. The instructions did not explicitly state that a comparison had to be made. All twelve subjects attempted to make a comparison. Only seven of the subjects employed relational terms. The following are examples of responses employing relational terms:

$L\,\ell\tau_3$: "He'd be more comfortable with the slippers."

"And the boots he wouldn't feel so comfortable."

$L\,o\tau_3$: "He'd probably feel more comfortable in the slipper than in the boot."

"He'd probably feel more relaxed in the slippers and more comfortable and them (boots) are heavier than those."

$H\,\ell\tau_1$: "He'd feel more comfortable in the slipper because it wouldn't be that heavy to carry around like the boot."

$H\,\ell\tau_2$: "He'd feel more comfortable in the slipper cause it wouldn't be as hot as the boot would be."

$H\,\ell\tau_3$: "If he was wearing a slipper while reading the newspaper he'd more than likely feel lot more comfortable and so he could like put up his legs on his on his foot rest."

"When he's wearing the slipper he feels more cool, there's more air getting to—I think. There's air passages getting to feet."

In conclusion, the approaches used in examining use of relational terms where differences between and within groups occurred were: the number of kinds of relational terms, the ability to make multiple comparisons, to define abstract concepts, and to maintain a point of view throughout a response. The results indicated that higher socio-economic group communicated more kinds of relational terms than the lower socio-economic group. Within each socio-economic sub-group the often travel sub-group pointed to a slightly higher score of number of kinds of relational terms than the little travel sub-group. In the lower socio-economic group the higher the intelligence the more kinds of relational terms, however, this latter trend was not observed in the higher socio-economic group. In the multiple comparison question, generally speaking most subjects in all groups attempted multiple comparisons but the least successful seemed to be the subjects in the lowest intelligence ranges in $L\ell\tau$, $H\ell\tau$ and $Ho\tau$ sub-groups who had a tendency to attend to single objects in turn or to compare two objects and omit the third, instead of making a multiple comparison in one statement. Only one subject, $H\ell\tau_1$, who also had difficulty with the multiple comparisons did not attempt a definition of abstract concepts. To maintain a point of view throughout a response again did not yield definite patterns within and among groups or individuals. The only subject who did not hold a point of view in question seven, $Ho\tau_1$, was also one of the subjects who had difficulty with the multiple comparison question mentioned above.

Furthermore, this study in the examination of the statements where relational terms were used, seemed to suggest that in the higher socio-economic group and often travelled sub-groups in both socio-socio-economic areas, and subjects with the higher intelligence scores in all sub-groups produced more complex sentences, a greater variety of words and more abstract thinking than the lower socio-economic, less travelled and lower intelligence subjects. The observations made of the higher socio-economic, often travelled, higher intelligence subjects in this study seem to compare to the observations Siemens (1973) made of her older higher language users.

[illegible]mparative words were used mainly to point to differences in the abstracted common features in comparing stimuli. Similar to the patterns noted in the use of relational terms, the trend for the higher socio-economic sub-groups was toward greater conceptualization of thought and use of a greater repertoire of words and a more frequent utilization of more complex sentences. The results also indicated that particularly in the lower socio-economic group the subjects with the higher intelligence scores utilized greater conceptualization of thought, a greater repertoire of words and more complex sentences than did the subjects with the lower intelligence scores.

The following examples show the changes in responses between and within the groups in the use of comparative words or phrases. In order to illustrate the changes questions one and five were selected. Question one represents a relatively simple language task and question five a more complex language task. Most of the responses utilizing comparative words in these questions are included in the examples. In the examples which follow, only the discriminating words or phrases identifying the differences are cited whenever it was possible to lift them from the sentences without influencing the meaning; the whole sentence or sentences are given in which words could not be isolated without affecting the meaning.

Question one (compare bell and a jar of jelly beans):

L $\ell\tau_1$: "funny noise/rattly noise" "candy/bell"

L $\ell\tau_2$: "glass/metal"

L $\ell\tau_3$: "a shape on top/just round"

"one you can set upside down/you can just set it up on one side."

"rings inside/rings at the top to hold the top on"

"can hold liquid/can't hold anything"

L $o\tau_2$: "one you can eat/one you can't"

"steel/glass"

"has design/has writing"

L $o\tau_3$: "This jar you can see everyday/You don't usually see this bell all the time."

"You can store things in the jar and eat the stuff in it/you attract you can attract attention with this."

H $\ell\tau_1$: "glass/tin"

"The jar is for containing things—like anything you want, peanut butter or—or jam. The bell it's not for containing because you can't really put things in and hold it in there unless you tie it up."

"rings inside/smooth inside"

"The handle of the bell is stuck into the bell or else you couldn't ring it and the jar you can't really strike it on because you have to take it off and put it back on to put stuff in."

H $\ell\tau_2$: "lid of metal/bell of metal"

"lid on jar gives original content/bell doesn't have any writing on it."

H $\ell\tau_3$: "That part makes that hits against the side of the bell is attached to the bell but the jelly beans are not attached to the jar."

H $o\tau_1$: "You can open the jar/bell can't be opened."

"The bell has little mechanism attached to the thing/ the jelly beans are just put inside the jar."

"a twist top/no top at all"

"You can take this apart in two parts and you can take this in two parts."

"baby food/nothing to do with food"

"opaque/transparent"

$H\,o\tau_2$: "different noise/another different noise"

"French writing/no writing"

"The jar was used once most likely to contain something and probably bought but the bell you just bought it as it was."

"It (bell) has lines all over it and about the only lines that the jam jar has just one line where the seam is or where they join it."

"one color/different colors"

$H\,o\tau_3$: "eat parts/one you can't eat"

"tells which way to take top off/can't take top off"

Question five (compare school and theater):

$L\,\ell\tau_1$: "teach you how to read and write stories/show pictures"

"lights off/lights on"

"don't have to pay at the door/have to pay at the door"

"can't drink pop/can drink pop"

"can't talk/sometimes you can talk at theaters"

"sit at theaters/at school you sit, read, sit, walk"

$L\,\ell\tau_2$: "can eat in a theater/can't eat in school"

$L\,\ell\tau_3$: "In a school you teach people/in a theater you watch people do drama."

"just made mainly for drama/school's made mainly for teaching"

"big stage in theater/not as big a stage in school"

"For a theater you have lots of parking space and for a school you don't—just have enough parking space for teachers."

"adults show the pictures in theater/kids doing drama in school"

$L\,o\tau_1$: "one teaches/one shows you something"

$L\,o\tau_2$: "work/sit and watch"

$L\,o\tau_3$: "In school you learn stuff/in the theater you still learn stuff but by showing pictures and tell about what can happen."

"You show what happened by showing pictures and acting it and in school you use books and blackboards."

$H\,\ell\tau_1$: "to get an education/most watch plays or movies"

"whole bunch of rooms/one room"

"it's fun to go to a movie/some like school some don't"

"A school has a whole bunch of people for teachers 'cause they need to teach the kids about math and things and when the theater doesn't have any teachers because they don't really need to teach the kids about the play—they just have a whole bunch of actors which the school doesn't have."

$H\,\ell\tau_2$: "learn things/watch a movie"

"one room/many different rooms"

"snack bar/no snack bar"

"entertaining/boring"

"The teacher teaches you things at school/the person that runs the film is sort of the same."

$H\,\ell\tau_3$: "you don't have to go to a theater/you have to go to school"

"Theater and schools are classed differently because the show at a theater may be restricted adult, adult or family—but it's the same as with a school it's high school, junior high or elementary school."

$H\,o\tau_1$: "learn in school/act out things in theater" "certain specific times every day/once a week at 8 o'clock say"

"a lot of actors/students and teachers"

"chairs/desks"

"theater's on stage/school work is on floor sorts"

"write things/watch"

"You do a lot of things at school like you do math, language and social—in a theater when they do a performance it's usually just one performance at a time like at night—so they might do Romeo and Juliet one night and another play at a different night."

"acting, singing, dancing/work"

H OT$_2$: "most theaters in industrial parts of town/some schools are but many are just in residential areas"

"To a drive-in theater you have you go there at night time and the junior high anyhow you don't go at night time but university you do. I guess some adults take night classes at Ross Shep."

"posters up about movies/posters up but not about movies"

H OT$_3$: "learn things/watch"

"pay to get in/don't pay to get in"

"lots of kids/parents and kids"

Relational terms and comparative words were used by the lower socio-economic and higher socio-economic groups of all intelligence ranges. The frequency and variety of relational terms was influenced to some degree as Siemens' study also indicated by the complexity of the questions, but more so by the higher intelligence and the higher socio-economic background of the subjects. The relational terms used were: "both", "bigger", "more", "larger", "further", "softer", "heavier", "lower", "better", "as much", "half as heavy", "taller", "higher", "closer together", "as closed in", "not as many" and "skinnier". A number of these relational terms such as "larger" "half as heavy" were evidence of the subjects' growing facility to attempt a quantitative analysis (Hennings and Grout, 1973, p. 20). Intelligence and socio-economic status also were factors in effective use of comparative words. Effectiveness in the use of both relational terms and comparative words was the greatest in the higher socio-economic group and in the higher intelligence of the lower socio-economic. Siemens found that it was the high language users who employed the relational terms and comparative words most effectively.

Summary

The descriptive task Comparison and Contrast provided a great amount of information. There were patterns of greater abstractness of thought and more explicitness in expression of thought among children of two socio-economic groups and of varying intelligence levels. These patterns were evident in the analysis or organization for the task, quantity and quality of abstracted common features in relating two or three stimuli, and the expression of the relationships when making comparisons. When the questions increased in complexity the amount of language communicated as well as the degree of abstractness of thought and explicitness in expression of thought was influenced in all of the groups. Particularly in the high socio-economic sub-groups and the higher intelligent of the low socio-economic sub-groups greater abstraction of thought and conceptual language was elicited by the more abstract questions.

In the organization of the task, which centered on growth or differences in ability to communicate differences and similarities of the abstracted common features in relating two or three stimuli, all the subjects tended to intersperse the specification of differences and similarities to some degree in the first six questions. Questions one to three were considered more simple questions and questions four to six were considered more complex since question four included multi comparisons and questions five and six abstract concepts. Yet to intersperse specification of differences and similarities was evident in all six questions. There was a more frequent occurrence of the S/D and interspersion response in the higher socio-economic group than in the lower socio-economic group. In questions seven and eight which were considered the most difficult there was an equal number of "differences only" responses for both socio-economic groups, however, it can be noted that the lower intelligence subjects in any group had no D/S responses while the upper intelligence subjects in all the groups had D/S sequences. The subjects of higher intelligence in all sub-groups tended to rely more on noting differences than the subjects of lower intelligence in tasks of greater complexity.

The various questions elicited differences in total number of abstracted common features. Greater numbers of comparisons resulted from stimuli with numerous parts while fewer number of comparisons resulted from the very complex questions. In all the questions the higher socio-economic group produced more responses than any other group. In all the questions with the exception of question seven the H ℓτ subgroup produced more responses than the lower socio-economic group. In all the questions with the exception of question seven the L ℓτ sub-group produced more responses than the L oτ sub-group.

The categories of meaning identified most frequently in the abstraction of common features in comparing stimuli were limited mainly to color, function, use, composition and part-whole relations. Total number of responses which were rated as "conceptual" responses increased consistently with the increase in complexity of the questions with the exception of question seven. All the subjects in the four groups communicated conceptual responses, however, the H oτ sub-group communicated the greatest number of conceptual responses. The H ℓτ sub-group communicated more conceptual responses than either of the L groups. Within each group the number of conceptual responses increased from the lower to the higher intelligence scores with the exception of the L ℓτ sub-group where the difference is very slight but the lowest intelligence subject had one more conceptual response than the subject with the highest intelligence.

The expression of relationships in the comparisons were classified into three groups: listing isolated abstracted features, reduced comparisons employing relational terms but failing to point to one of the stimuli were considered incomplete comparisons, and the statements of comparison. Within the statements of comparison there were two subclasses: relational terms and comparative words. In general the subjects produced much fewer listed abstracted features and reduced comparisons than statements of comparison. The percentage of listed abstracted features of the total number of expressions of relationships in the comparisons was less for the subjects of higher intelligence than for those with lower. However, the higher socio-economic groups did not have fewer listed abstracted features than the lower socio-economic group. The number of reduced comparisons was higher for the H_{OT} sub-group for questions six, seven and eight than for the other sub-groups. If an analysis of the statements of comparison suggests that the frequency of statements of comparison and use of relational terms are a function of maturity and language facility (Siemens, 1973) then the present findings suggest that the higher socio-economic groups, the often travelled and the higher intelligence subject of the lower socio-economic who communicated more comparative words and relational terms than the lower socio-economic of lower intelligence respectively have better language facility. The higher socio-economic subjects used more relational terms than did those of lower socio-economic groups. When language samples of the four sub-groups were examined these findings were supported and also were provided with evidence that the high socio-economic groups operated at higher levels of conceptualization of thought, used a greater repertoire of words, and included greater amounts of information in their sentences than did the lower socio-economic groups.

From the culmination of the analysis of the comparison and contrast task the following postulations may be made. The subjects in the higher socio-economic areas have greater language competence than the lower socio-economic groups. Those subjects from the often travel group, particularly from the higher socio-economic area, are more competent in language than the little travel group. It should be noted here that since the little travel sub-group seems to perform better than the often travel sub-group in the low socio-economic area. reference may need to be made concerning the quality of the language communicated by the often travel sub-group in relation to the quantity. It was found that when the number of conceptual categories of the L_{oT} and the $L_{\ell T}$ sub-groups was compared to the total number of categories by each group, the ratio of conceptual categories to total number of categories was greater for the L_{oT} sub-group than for the $L_{\ell T}$ sub-group. The $L_{\ell T}$ sub-group also employed more listed abstracted features than the L_{oT} sub-group. Both above features (more conceptual responses and fewer listed abstracted features) were observed of Siemens' older high language users.

Finally, it appears that the subjects with the highest intelligence scores more consistently indicated better language facility than those of the lower intelligence ranges, particularly in the low socio-economic group.

There seems to be ample research evidence (Deutsch, 1965; Bernstein, 1967; Loban, 1963, 1966a, 1967; Rodgers, Slade and Curry, 1974) that children from higher socio-economic backgrounds use a greater repertoire of words and indicate better language ability earlier, and to a greater degree, than children from lower socio-economic backgrounds. Research also points to evidence to indicate that a rich experiential background aids in language development (Brunner, 1965; Olsen, 1965). Smith (1961) and Dechant (1970) claim that travelling experiences assist in developing better language. Furthermore, the review of research by Carroll (1960) and Dechant's (1970) opinion would lend support to the finding that there is a positive relation between language maturity and intelligence.

Story-Telling

Since the comparison and contrast task limited the samples of language structure to comparative statements, the story telling task was utilized and analyzed for all subjects. Inasmuch as Siemens' (1973) analysis was subjective the investigator decided to utilize Loban's objective analysis of language and compare the results of the two types of analysis.

In the present study then the total number of words in each subject's story were counted. The story was segmented into communication units, and the number of communication units and average number of words per communication unit were determined. The communication unit was defined as Loban (1963) defined it: "The grammatical independent clause with any of its modifiers" (p. 7). No communication unit includes more than one such independent clause. In other words, a complex sentence is a communication unit but a compound sentence can not be because it has more than one independent clause. The following are samples of two subjects' oral language segmented into communication units (the diagonal line indicates segmentation):

"After they had finished getting all the money out of the bank they took the girl because she would've squealed/and they took her with them in the car." Contractions like "would've" are counted as two words. The above sample has thirty words, two communication units with an average of fifteen words per unit.

"The people next door phoned the fire department/and the fire department came/and the whole house was on fire/and they were trying to put it out." The above sample has twenty-eight words and four communication units with an average of nine words per unit.

The total number of words used by each subject in telling his story was recorded. The stories were segmented into communication units and the number of communication units was recorded. Since the stories were of varied lengths and in order to make the group comparison it was decided to calculate the number of communication units for each hundred words. Finally the mean number of words for each communication unit was calculated. Table 4.17 shows the total number of words, number of communication units for each hundred words and the mean length of the communication units for each subject.

The pattern that appears in total number of words used in Table 4.17 is that the higher socio-economic group used more words than the lower socio-economic group. Within the higher socio-economic group the often travelled subjects had considerably more words than the little travelled subjects. In the lower socio-economic group the latter pattern did not appear. The intelligence scores did not seem to affect the number of words used in the higher socio-economic group since no trend appeared from lower to higher intelligence. In the lower socio-economic sub-group the number of words increased within each group as the intelligence score increased with the exception of $\mathrm{L\,OT}_3$ whose total number of words was less than $\mathrm{L\,OT}_2$'s. The pattern that appears in number of communication units for every hundred words is that the higher socio-economic group tended to use fewer

Table 4.17

Story Length, Number of Communication Units and Mean Length of Communication Unit by Subject

Group	Subject	Total Number of Words	Number of Communication Units per 100 Words	Mean Length of Communication Unit
L ℓτ	1	136	13.2	7.55
	2	177	13.0	7.69
	3	199	8.5	11.70
L oτ	1	49	14.3	7.0
	2	196	11.2	8.9
	3	124	8.1	11.27
H ℓτ	1	180	12.2	8.18
	2	168	9.5	10.5
	3	188	9.5	10.44
H oτ	1	460	6.5	15.33
	2	898	8.9	11.22
	3	250	9.2	10.86

communication units than the lower socio-economic group. Within each socio-economic group the often travel sub-groups' number of communication units for each hundred words was less than the little travel sub-groups'. Furthermore, as the intelligence score increased within each group except in the $H\,o\tau$ sub-group the number of communication units per hundred words decreased . Table 4.17 also shows that in mean length of communication units the higher socio-economic group used more words in a communication unit than the lower socio-economic group. The often travel sub-group within the socio-economic groups employed longer communication units than the little travel sub-groups. As intelligence scores increased in the lower socio-economic sub-groups the mean length of the communication unit increased. This latter trend was not apparent in the $H\,o\tau$ sub-group since in the $H\,\ell\tau$ sub-group $H\,\ell\tau_2$ had a greater mean length of communication unit than $H\,\ell\tau_3$.

Loban (1963, 1966a, 1967) reported that as a child grew older, and as he improved in language facility, each succeeding year the child used more words, more communication units and more words in each communication unit. Hunt (1965) cited evidence that T-unit length (the T-unit is synonymous with Loban's communication unit) is the best indicator of grade level.

The analysis of the story-telling task seems to suggest that the higher socio-economic group, the often travel sub-groups within their socio-economic group and the subjects with higher intelligence scores in the lower socio-economic group indicate greater language facility than the lower socio-economic, little travel sub-groups within their socio-economic group and subjects with lower intelligence scores in the lower socio-economic group. The results of the evaluation of oral language in the story-telling task following Loban's counting language features appears to support the findings of the language analysis in the comparison and contrast task.

READING ABILITY

Data on the reading ability of all pupils were obtained from administration of the Dvorak-Van Wagenen Diagnostic Examination of Silent Reading Abilities, Junior Division—Form M. Seven reading subtest scores were obtained for each subject; two vocabulary subtests and five reading comprehension skills subtests.

Distribution of percentile scores on the reading comprehension skills subtests and the total reading comprehension percentile score for all subjects is presented in Table 4.18. To summarize Table 4.18 and compare the performance of the groups, the percentile score of the mean raw score for each sub-group was calculated. The mean percentile scores for each group for reading comprehension subtests were:

	Central Thought	Simple Details	Related Ideas	Inference	Interpretation	Total
Group L ℓτ	29	<1	22	22	37	16
Group L oτ	22	29	37	46	54	25
Group H ℓτ	46	84	54	71	46	59
Group H oτ	54	63	89	63	63	63

The pattern that appears indicates that in all the subtests and consequently in total reading comprehension the higher socio-economic group's mean percentile scores are higher than the lower

Table 4.18

Percentile Scores for Reading Comprehension
Subtests by Subject

Group	Subject	Central Thought	Simple Details	Related Ideas	Inference	Inter-pretation	Total
L ℓτ	1	16	<1	9	4	16	2
	2	37	4	16	16	54	19
	3	46	16	54	54	46	41
L oτ	1	4	9	<1	29	37	7
	2	37	37	46	46	54	41
	3	29	46	71	71	63	59
H ℓτ	1	16	22	22	63	22	22
	2	37	95	71	63	63	71
	3	84	71	63	95	63	81
H oτ	1	37	71	54	71	78	67
	2	29	37	78	54	63	54
	3	84	71	71	63	54	75

Percentile scores are given for Part III of the Dvorak-Van Wagenen Examination of Silent Reading Abilities, Junior Division - Form M.

socio-economic groups' mean percentile scores. Only in the interpretation subtest did the percentile score of the L oτ sub-group exceed that of the H ℓτ sub-group. Comparing the often travel and little travel sub-groups within the socio-economic groups the pattern indicates that in the higher socio-economic group the often travel sub-group exceeds the little travel sub-group in three of the five subtest percentile scores and the total reading comprehension percentile score. In the lower socio-economic group the often travel sub-group exceeds the little travel sub-group in all subtest percentile scores with the exception of the central thought subtest.

Since lists of comprehension skills as devised by Gray (1957), Spache (1969), Geyers (1971-72) and Harris (1972) consistently include word meaning or vocabulary as an important component in developing reading comprehension the present study concerned itself with vocabulary subtests as well as other comprehension skill subtests.

The percentile scores on the vocabulary subtests for all subjects are presented in Table 4.19. The following is a summary of Table 4.19 indicating the percentile scores of mean raw scores as performed by the groups on the two vocabulary subtests:

	Vocabulary in Context	Vocabulary in Isolation
L ℓτ	22	13
L oτ	25	22
H ℓτ	25	25
H oτ	78	59

The trends in the above information indicate that the

Table 4.19

Percentile Scores for Vocabulary
Subtests by Subjects

Group	Subject	Test 3 Vocabulary in Context	Test 4 Vocabulary in Isolation
L ℓT	1	22	4
	2	11	19
	3	41	33
L oT	1	22	13
	2	19	19
	3	54	41
H ℓT	1	1	<1
	2	75	75
	3	59	75
H oT	1	91	46
	2	91	87
	3	67	46

Percentile scores are given for Part II, Tests 3 and 4 of the *Dvorak-Van Wagenen Diagnostic Examination of Silent Reading Abilities, Junior Division - Form M*.

vocabulary in context subtest resulted in higher scores than the vocabulary in isolation subtest by all groups with the exception of the H ℓτ sub-group. In both subtests the mean percentile scores of the higher socio-economic groups exceeded those of the lower socio-economic groups. In both socio-economic groups the often travel sub-groups performed better in both vocabulary subtests than the little travel sub-groups.

The results of the Dvorak-Van Wagenen Diagnostic Examination of Silent Reading Abilities provided information on performance in vocabulary in context, vocabulary in isolation, five reading comprehension skills and the total reading score. The results indicated that in the vocabulary in context subtest, the vocabulary in isolation subtest and in the related ideas subtest and in the total reading comprehension test a pattern appeared. Without exception the groups ranked in this order in the above mentioned tests from the highest to the lowest score: H οτ , H ℓτ , L οτ and L ℓτ . The subjects from a high socio-economic background scored higher in these reading subtests than the low socio-economic regardless of the amount of travelling experience. However, within both the high and low socio-economic groups the often travel sub-groups perform better in the reading tests than the little travel sub-groups.

The findings of the present study seem to indicate that the child from a higher socio-economic background achieves better in reading comprehension including vocabulary tests than the child from a lower socio-economic background. Bernstein's (1967) study would support the present findings since he postulates that children from lower class families will experience difficulty in learning to read and in extending their vocabulary. Hill and Giammattio (1963) would likely agree since their study revealed that children from high socio-economic status performed well above low socio-economic children in reading, vocabulary and comprehension. The present study also suggests that the child who travels oftener especially if in the higher socio-economic area will indicate better reading comprehension ability. In studies where travelling experiences or excursions (Yokley, 1958; Smith, 1961) were related to reading it was found that the good readers were also those who had had experience in travelling and making excursions. Dechant (1970) would support the above since he concludes that a rich background of experience prepares the child to attack the printed page. Another finding of the present study is that the child with the higher intelligence scores in both socio-economic groups reveals better reading comprehension and vocabulary skills than the child with the lower intelligence scores particularly in the lower socio-economic group. That reading achievement and intelligence are closely related would be substantiated by Monroe (1939), Bond and Tinker (1957) and Smith (1961) who seem to agree that the children whose reading achievement scores are high are also those with higher intelligence scores. Bond and Tinker (1957) add that children with IQ's of 125 or higher are not to be found among poor readers. Therefore, Curry's (1962) postulation that higher intelligence at least at the grade six level seems to offset any environmental and economic deficits may also be used to lend support to the findings that even though the child is from a low socio-economic backround, if his intelligence score is high, he is likely to do well in reading.

SUMMARY

The present study was designed to determine if a relationship between oral language competence and reading comprehension exists in seventh grade males. To describe the sample, information from the 1971 Canadian Census Report, questionnaires and school records were used.

The performance of each subject in various aspects of oral language and in reading ability subtests was presented and compared. In order to indicate, at a glance, the performance of each subject in oral language and reading the results of the analysis of the comparison and contrast and story-telling tasks and of the reading tests were tabulated in Table 4.20. For the present study, in the comparison and contrast task the greater the number in the following columns indicates greater competency in oral language: number of interspersion sequences, of statements specifying similarities, of conceptual categories of different relational terms and number of times relational terms and comparative words were used. In the story-telling task the fewer the number of C-units and the greater the mean length of the C-unit indicate better language facility.

The information in Table 4.20 suggests that the higher socio-economic group seemed to indicate considerably better language facility than the lower socio-economic group. The difference between the often travel and little travel sub-groups within the

Table 4.29

Performance in Oral Language and Reading by Subject

	ORAL LANGUAGE										READING							
	Comparison and Contrast							Story-Telling			Subtests in Percentile Scores[b]							
	Organization of the Task		Quality & Quantity		Expressions of Relationship													
Subject	Number of Inter-operation Sequences	Number of Statements Specifying Similarities	Number of Abstracted Features (in total)	Number of Conceptual Categories	Number of Different Relational Terms	Number of Times Relational Terms Used	Number of Times Comparative Words Used	Story Length (in words)	C-units[a] per 100 words	Mean Length of C-unit	Central Thought	Simple Details	Related Ideas	Inference	Interpretation	Total Reading	Vocab. in Context	Vocab. in Isolation
L lr$_1$	3	2	50	13	2	7	23	136	13.2	7.55	16	<1	9	4	16	2	22	4
L lr$_2$	2	7	39	14	1	15	9	177	13.0	7.69	37	4	14	16	54	19	11	19
L lr$_3$	5	17	92	18	5	23	48	199	8.5	11.70	46	16	54	54	46	41	41	33
L or$_1$	0	10	24	8	2	13	10	49	14.3	7.0	4	9	<1	29	37	7	22	13
L or$_2$	1	6	41	10	3	10	10	196	11.3	8.9	37	37	46	46	54	11	19	19
L or$_3$	1	3	46	16	6	7	33	124	8.1	11.27	29	46	71	71	63	59	54	41
H lr$_1$	6	6	99	13	9	11	39	180	12.2	8.18	16	32	32	63	22	22	1	<1
H lr$_2$	6	21	57	16	7	25	26	166	9.5	10.5	37	95	71	63	63	71	75	75
H lr$_3$	6	29	85	21	5	39	27	180	9.3	10.4	84	71	63	95	63	81	59	75
H or$_1$	6	15	164	25	4	12	69	460	6.3	15.33	37	71	54	71	78	67	91	66
H or$_2$	6	23	192	24	12	39	66	890	8.9	11.22	29	37	78	54	63	54	91	87
H or$_3$	5	34	127	26	7	44	49	250	9.2	10.86	84	71	71	63	54	75	67	46

(a) C-unit: A principal clause plus all the modifiers.

(b) Percentile scores are given for subtests of the *Dvorak-Van Wagenen Diagnostic Examination of Silent Reading Abilities, Junior Division - Form E.*

socio-economic groups seemed to favor the often travel sub-group particularly in the higher socio-economic group. The subjects in the highest intelligence range mainly in the lower socio-economic sub-groups indicated better language facility than those of lower intelligence. In the reading subtests the subjects in the higher socio-economic group achieved higher scores than the subjects in the lower socio-economic group. The results of the study seem to provide evidence that the subjects who indicate better language facility also demonstrate better reading ability.

There is much evidence in research that suggests a close relationship between language and reading and that if there is indication of better ability in language there will also be better achievement in reading. Loban (1963, 1966a, 1967) and Lefevre (1970) refer to the correlation that exists among the language arts: speaking, listening, reading and writing. Robinson (1955), Smith (1963) and Dechant (1970) agree that a child's ability in speaking and listening is the best indication of his readiness to read. From Loban's (1963, 1966a, 1967) longitudinal study he cited evidence that at all grade levels, those who had the highest oral language ratings performed best on reading tests. Brooks, Smith, Goodman and Meredith (1974) concur that the entire process of reading can be best understood when consideration is given to the devices within language that convey meaning and the ways readers interpret and react to these devices. Taken as a total it would appear that in this study the subjects that exhibited better language facility also demonstrated better reading comprehension.

Chapter V

SUMMARY, CONCLUSIONS, IMPLICATIONS, SUGGESTIONS FOR FURTHER RESEARCH AND LIMITATIONS

SUMMARY

Language and reading are two of the language arts and seem to be interrelated and interdependent. The major purpose of this study was to obtain answers to four research questions concerning a relationship between language competence and reading ability. Oral language was assessed through the subjects' performance in comparison and contrast and story-telling tasks. Reading ability was evaluated by the subjects' performance in five reading comprehension skills, and two vocabulary subtests. The research questions involved comparisons of language competence and reading ability of subjects (1) from a higher socio-economic background and from a lower socio-economic background, (2) with much travelling experience and with little travelling experience in both socio-economic groups, and (3) in different intelligence ranges in both travelling experience sub-groups within both socio-economic groups.

Findings indicated that language facility and reading ability of the higher socio-economic subject was better than those of the lower socio-economic subject. A directional difference favoring the subjects of much travelling experiences was found when comparing competency in language and performance in reading of the much travelling experience sub-group especially in the higher socio-economic group. Finally there was indication that in the lower socio-economic sub-groups particularly, the subjects with the higher intelligence scores indicate better language facility and reading ability than those of lower intelligence.

These findings and their educational implications together with suggestions for further research are presented in this chapter.

SUMMARY OF MAIN FINDINGS AND CONCLUSIONS

Each question posed at the beginning of this study will be discussed in the light of the findings.

Question 1: Is there a relationship between socio-economic background and either oral language competence or reading comprehension or both?

There were significant differences between the higher and lower socio-economic groups in oral language performance. In organization of the task, of the comparison and contrast task, the higher socio-economic group tended to use more interspersion sequences and yielded more similarities responses than the lower socio-economic group. The interspersion sequences rather than only differences first and then similarities or only similarities first and then differences, indicated the initial stages of concept formation (Vygotsky, 1962). With reference to the similarity responses it has been found (Church, 1961) that the ability to specify differences develops before the ability to specify similarities. The greater number of similarity responses by the higher socio-economic group would therefore indicate further language development.

In quantity and quality of language yielded the higher socio-economic group provided a greater number of abstracted features than the lower socio-economic group. The language thus produced indicated more conceptual behavior than the lower socio-economic group. When the expressions of relationship were examined it was found that the higher socio-economic group exceeded the lower socio-economic group in number of reduced comparisons, different kinds of relational terms and number of comparative words. The use of reduced comparisons suggests implicitness in speech behavior (Siemens, 1973). Number and variety of relational terms and comparative words suggests that the subject has a greater repertoire of words.

The higher socio-economic group produced longer stories and longer communication units than the lower socio-economic group in the story-telling task. Research (Hunt, 1965; Loban, 1963, 1966a, 1967) suggests that better language facility is indicated by the use of longer communication units and a greater repertoire of words.

The lower socio-economic group also did not perform as well as the higher socio-economic group on the reading comprehension tests. The percentile scores on the total reading comprehension test, the vocabulary in context and vocabulary in isolation subtests were higher for the H group than for the L group.

These findings indicate that the lower socio-economic subjects do not perform as well in oral language competence nor reading comprehension as the higher socio-economic subjects.

Question 2: Is there a relationship between experiential background and either oral language competence or reading comprehension or both?

There were significant differences between the often and little travel sub-groups in the higher socio-economic group in oral language performance. Of the six criteria of the *comparison and contrast task*, i.e. number of interspersion sequences, of statements specifying similarities, of abstracted features, of conceptual responses, of different relational terms and comparative words, and the *story-telling task* the often travel sub-group exceeded the little travel sub-group in performance in all with the exception of number of interspersion sequences. The little travel sub-group yielded only interspersion sequences, however, the often travel sub-group also produced an S/D sequence, a similarities first and then differences sequence. In the reading comprehension test the often travel sub-group produced higher percentile scores than the little travel sub-group in the total reading comprehension score and in both vocabulary subtests. These findings indicate that in the higher socio-economic group the often travel sub-group has the advantage over the little travel sub-group in both oral language facility and in reading comprehension ability.

The differences in oral language performance between the little travel and often travel sub-groups in the lower socio-economic group are not as obvious as they were in the higher socio-economic group. In quantity in the *comparison and contrast* task the little travel sub-group yielded more interspersion sequences, similarity statements, abstracted features, conceptual responses, etc. than the often travel sub-group. Only in the number of different kinds of relational terms did the number of the often travel sub-group exceed that of the little travel sub-group. The greater variety of relational terms indicates a greater repertoire of words. Furthermore, it was also noted that when the percentage of conceptual responses and similarities statements of the total number of responses was calculated the often travel sub-group had the advantage. In the storytelling task the little travel sub-group tended to produce longer stories than the often travel sub-group but the mean length of the communication units of the often travel sub-group tended to be longer. The percentile scores in the reading tests indicated that the often travel sub-group exceeded the little travel sub-group in total reading comprehension and in both vocabulary subtests. These findings suggest that in the lower socio-economic group, although the little travel sub-group exceeded the often travel sub-group in quantity of language (number of responses) the language of the often travel sub-group tended to be of better quality than that of the little travel sub-group.

In conclusion, the above findings indicate that the often travel sub-groups indicated better oral language and greater ability in reading comprehension than the little travel sub-groups, particularly in the higher socio-economic group.

Question 3: Is there a relationship between intelligence and either oral language competence or reading comprehension or both?

There were differences between the subjects of lower intelligence and higher intelligence in both oral language performance and reading ability, particularly for those in the higher socio-economic group. The tendency for the subject with the highest intelligence score to perform better than the subject with the lowest intelligence score was most consistent in the little travel sub-group of the lower socio-economic group. In all areas of oral language measured in this study the subject in the highest intelligence range indicated better oral language competence than the subject in the lowest intelligence range. The subject in the mid intelligence range did not indicate better oral language performance than the subject in the highest intelligence range but in a few areas the subject in the lowest intelligence range indicated better oral language than the subject in the mid intelligence range.

In the often travel sub-group the subject in the highest intelligence range indicated better language facility than the subject in the lowest intelligence range in all oral language areas measured in this study with the exception of number of statements specifying similarities and in number of times relational terms were used. The above can also be said about the subject in the mid intelligence range, however, $\mathrm{L\,OT}_2$ exceeded $\mathrm{L\,OT}_3$ in number of words in the story-telling task, in statements specifying differences and in number of times relational terms were used.

In the higher socio-economic group, intelligence seems to be less influential than in the lower socio-economic group in oral language performance. In the little travel sub-group the subject in the highest intelligence range exceeds the subject in the lowest intelligence range in oral language performance in five of nine areas measured, i.e. number of statements specifying similarities, number of conceptual responses, number of times relational terms were used, story length and mean length of communication unit. In the often travel sub-group the subject in the highest intelligence range exceeded the subject in the lowest intelligence range only in four of the nine areas of oral language measured, i.e. number of statements specifying similarities, number of conceptual responses, number of different relational terms and number of times relational terms were used.

The above findings indicate that intelligence seems to influence subjects in the different sub-groups in oral language performance in the following order from the most to the least effect:

1. the little travel sub-group of the lower socio-economic group,
2. the often travel sub-group of the lower socio-economic group,
3. the little travel sub-group of the higher socio-economic group,
4. the often travel sub-group of the higher socio-economic group.

The results of the reading tests again suggest that intelligence seems to have greatest influence in the lower socio-economic group. In the total reading comprehension score and in both vocabulary subtests the results indicate a consistent tendency that as intelligence increased from low to middle to highest range, the percentile scores also increased in both sub-groups. Except in the vocabulary in context subtest the percentile score of the subject with the lowest intelligence score in both sub-groups exceeded those of the subjects in the middle intelligence range.

In the higher socio-economic group a similar tendency is indicated in the performance of the little travel sub-group. There is an exception, however, since the percentile score in the vocabulary in context of the subject in the middle intelligence range exceeds that of the subject in the highest intelligence range. No trend, however, seems to appear as the result of influence of intelligence in the often travel sub-group, except that in the total reading comprehension score the subject in the highest intelligence range is the highest in his sub-group. Yet the subject in the middle intelligence range scored below the subject in the lowest intelligence range in total reading comprehension percentile score.

The above findings suggest that the influence of intelligence is most obvious in reading comprehension ability in the lower socio-economic group. Furthermore, the effect of intelligence seems to be less apparent in the higher socio-economic group particularly in the often travel sub-group.

The observation made above is stated with caution since studies have found an interrelationship between intelligence and socio-economic status (Keller, 1963; Smith, 1963; Deutsch, 1965). Therefore, the investigator merely suggests that the intelligence quotient may be a predictor of reading success. Furthermore, the investigator claims, supported by Smith (1963), that the interrelationship between IQ and socio-economic status may be a more valid predictor for success in reading than intelligence alone.

Question 4: Is there a relationship between oral language competence and performance in reading comprehension?

In order to summarize more concisely the results of the analysis of oral language and reading, the mean number of total responses in oral language and reading as tabulated in Table 4.20 was calculated. The percentile scores of the mean raw scores on the total reading and vocabulary subtests were determined. The results of the above calculations were tabulated in Table 5.1.

The findings in this study suggest that in the oral language and reading areas measured:

1. The subjects in the higher socio-economic group perform considerably better than the subjects in the lower socio-economic group in both oral language and reading comprehension.

2. The subjects in the often travel sub-group in both socio-economic areas perform better than the subjects in the little travel sub-groups in both oral language and reading comprehension.

3. From Table 4.20 the observation can be made that the subjects in the highest intelligence range, particularly those in the lower socio-economic group, perform better in oral language and reading comprehension than subjects in a lower intelligence range.

Furthermore, the subjects were ranked from one to twelve (the lowest to the highest) according to their performance on each of the aspects measured in oral language and reading as recorded in Table 4.20. Following is a summary of where each subject ranked when the total performance of oral language and reading was considered.

Table 5.1

Mean Number of Total Responses in Oral Language and Reading by Sub-Group and Group

	ORAL LANGUAGE										READING		
	Comparison and Contrast							Story-Telling			Subtests in Percentile Scores[b] Taken from Sub-Group Means of Raw Scores		
	Organization of the Task		Quality & Quantity		Expressions of Relationship								
Sub-Group	Mean No. of Inter-spersion Sequences	Mean No. of Statements Specifying Similarities	Mean No. of Abstracted Features	Mean No. of Conceptual Categories	Mean No. of Different Relational Terms	Mean No. of Times Relational Terms Used	Mean No. of Times Comparative Words Used	Mean Length of Story (words)	Mean No. of C-units[a] per 100 words	Mean of Mean Length of C-unit	Total Reading Compre-hension	Vocab. in Context	Vocab. in Isolation
LIT	3.33	8.6	63	14	2.6	15.0	26	170.0	11.55	8.98	16	22	13
LCT	.66	6.3	40.3	11.3	3.6	10.0	17	123.0	11.10	9.05	25	25	22
HIT	6.0	18.6	80.3	16.6	7.0	25.0	30.6	178.6	10.4	9.69	59	25	25
HCT	5.6	24.0	154.3	25.0	7.6	38.3	51.3	536.0	8.2	12.47	63	78	59
Group													
L	1.99	7.45	51.65	12.65	3.1	12.5	21.50	146.5	11.32	9.01	19	22	16
H	5.80	21.30	117.30	20.80	7.3	31.5	40.95	357.0	9.3	11.08	59	50	22

[a] C-unit: Principal clause plus all its modifiers.

[b] Percentile scores are given for subtest of the Dvorak-Van Wagenen Diagnostic Examination of Silent Reading Abilities, Junior Division - Form M.

L: Lower socio-economic.

H: Higher socio-economic.

The subjects ranked in the following order:

	in Oral Language		in Reading & Vocabulary
The lowest	$L\,o\tau_1$		$L\,\ell\tau_1$
↓	$L\,o\tau_2$		$L\,o\tau_1$
	$L\,\ell\tau_1$	The bottom six	$H\,\ell\tau_1$
	$L\,\ell\tau_2$		$L\,\ell\tau_2$
	$L\,o\tau_3$		$L\,o\tau_2$
	$H\,\ell\tau_1$		$L\,\ell\tau_3$
	$L\,\ell\tau_3$, $H\,\ell\tau_2$		$L\,o\tau_3$
	$H\,\ell\tau_3$	The top six	$H\,o\tau_1$, $H\,o\tau_2$, $H\,o\tau_3$
	$H\,o\tau_1$		$H\,\ell\tau_2$, $H\,\ell\tau_3$
	$H\,o\tau_2$		
The highest	$H\,o\tau_3$		

The above ranking indicates that of the bottom six in both oral language and reading five subjects are from the lower socio-economic group. On the other hand of the top six five subjects are from the higher socio-economic group. It is $H\,\ell\tau_1$, the subject in the lowest intelligence range little travel background from the higher socio-economic group, who ranked in the bottom six in both oral language and reading. In oral language it is $L\,\ell\tau_3$, the subject of the highest intelligence range, little travel background who ranked in the top six, while in reading it is $L\,o\tau_3$, the subject in the highest intelligence range but often travel background who ranked in the top six. The observation can be made that the subjects who indicate better language competence also indicate better reading comprehension ability. Therefore, in conclusion, the findings of this study suggest that a relationship between oral language competence and performance in reading comprehension exists.

Although this study was not designed to determine the nature of the relationship between oral language and reading, the following observations were made:

In the comparison and contrast task the subjects who (1) yielded more similarity statements, (2) indicated more conceptual behavior and (3) used a greater number of different kinds of relational terms also performed better in the total reading comprehension score.

In the story telling-task the mean length of the C-unit suggested the closest relationship to the total reading comprehension score.

EDUCATIONAL IMPLICATIONS

The findings of this study may have relevance to two major areas of education, classroom practice and clinical practice.

At the classroom level, the teachers should be made aware that children from a lower socio-economic background, as well as those with little travelling experiences from the higher socio-economic background and those with low intelligence scores particularly from a lower socio-economic background may have difficulties in aspects of oral language. Furthermore, the teacher should be made aware that these oral language difficulties may hamper reading ability.

To overcome the dearth of experiences that this study suggests children with oral language difficulties may have (whether the lack of experiences is due to low socio-economic status or lack of travelling background), schools should be prepared to facilitate for enriched experiences. Children should be provided with opportunities to visit museums, make field trips to farms, factories, historical landmarks, fire stations, go on nature hikes, etcetera, and listen to speakers in order to increase their repertoire of words and enrich their background. Such visits could in turn be utilized as material for oral group discussion and/or individual oral reports.

Confirmation of the lack of language competence may be difficult unless evaluation methods can be easily and effectively used by the classroom teacher. However, observations of pupil performance on activities requiring aspects of language usage such as comparison and contrast can give the teacher indications of possible language difficulties among the less able readers. Modifications in instructional methods and materials for these pupils should include activities requiring much oral language. Opportunities should be provided for experiences, excursions and field trips that allow them to hear speakers, to see things and places not seen before and reporting back orally concerning the experiences.

The findings of the present study have relevance to clinical practice, namely in the area of diagnosis and remediation with reading problems. Clinical personnel should take account of the association of lack of language ability with difficulties in reading. In diagnosing the capabilities of the disabled reader limited exploration may be made of proficiency or lack of proficiency in oral language. The clinical reading situation because of its flexibility in terms of diagnostic procedures, provides an ideal setting within which to develop and refine techniques for assessment of language abilities. Consideration should be given the comparison and contrast task which could be employed in the clinical setting.

Remedial classes involve small groups of pupils with instructional programs to accommodate for the need of each pupil within the groups. In this context it is possible to incorporate activities which are designed to emphasize aspects of oral language ability. The objectives of some lessons taught should be to teach students strategies for recognizing and speaking about similarities and conceptual categories of objects, pictures and concepts. Furthermore, emphasis should be placed on increasing the students' repertoire of words, particularly in the use of relational terms and in the use of connectives in order to increase the mean length of their communication units. A variety of materials, activities and instructional approaches could be tried out and evaluated in the remedial setting. Information about the most effective procedures of utilizing oral language as an aid to improve reading ability could be made available not only to personnel involved with remediation but also to classroom teachers. To ensure that reading ability is developed with the oral language in the regular or remedial classroom it is suggested that with oral work resulting from each activity, field trip or guest speaker, suitable reading material is provided to supplement and compliment information acquired with the new experience.

SUGGESTIONS FOR FURTHER RESEARCH

1. The present study could be replicated with a larger sample.

2. Further investigation of oral language of seventh grade both male and female readers might be undertaken to provide insight into possible differences in ability in comparing and contrasting and story-telling in relation to reading ability.

3. The present study has explored two of Siemens' oral

language tasks. A useful study could be done employing more of Siemens' instrument to determine which tasks or combination of tasks provide a more comprehensive picture of oral language in relation to reading.

4. A study might be attempted to relate language and reading in which a reading test is used that requires parallel skills to oral language tasks in Siemens' instrument, i.e. comparison and contrast, inference, sequencing, etc..

5. A study could be done to determine the effectiveness of remedial procedures for children who are not proficient in oral language. A variety of instructional materials and methods might be designed and used with subsequent evaluation of their effectiveness.

LIMITATIONS

1. Since the study was limited to a group of only twelve subjects only observations for commonalities, trends and tendencies could be made.

2. Individual differences in maturation, attitude and personality were not taken into account although such factors may affect performance.

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APPENDICES

APPENDIX A

RESEARCH INSTRUMENT

DESCRIPTIVE TASKS: COMPARISON AND CONTRAST, STORY-TELLING

Administration of Tasks

The tasks are to be administered to the individual children.

It is important that the children understand this is not a test - that their performance on the various tasks will not be graded and that there are no right or wrong answers. The children should be cognizant of the purpose of the project which is to discover what children do when asked to describe objects, pictures, and events in various ways. The only requirement is that they attempt to do what is asked and that they try their best.

TIMING

It is important not to rush the children. They should be encouraged to think about the given task before responding. Follow instructions with, "Think about it and tell me when you are ready." Repeat the latter whenever necessary. (Turn off the tape recorder after the child has completed each task and wait to turn it on until the child gives the signal that he is ready.)

Comparison and Contrast*

Present the following stimuli.

1. bell/jar of jelly beans

Directions: Compare these objects. How are they the same and how are they different?

2. container with powder/jar of jelly beans

Directions: Compare these.

3. truck/bus

Directions: Let's suppose these are not toys but actually the real thing. Compare them as though they were the real objects.

4. pictures of shoe/boot/slipper

Directions: Compare these.

5. verbal stimulus

Directions: Compare a school and a theatre.

6. verbal stimulus

Directions: Compare a birthday and an anniversary.

7. Present the pictures of the boot and slipper.

Directions: If an ant was looking at the boot and slipper, how would it compare them?

8. Present the pictures of the boot and slipper.

Directions: Let's suppose your father is reading the newspaper. He may be wearing boots or slippers. How would he feel wearing boots, or slippers, while reading the newspaper?

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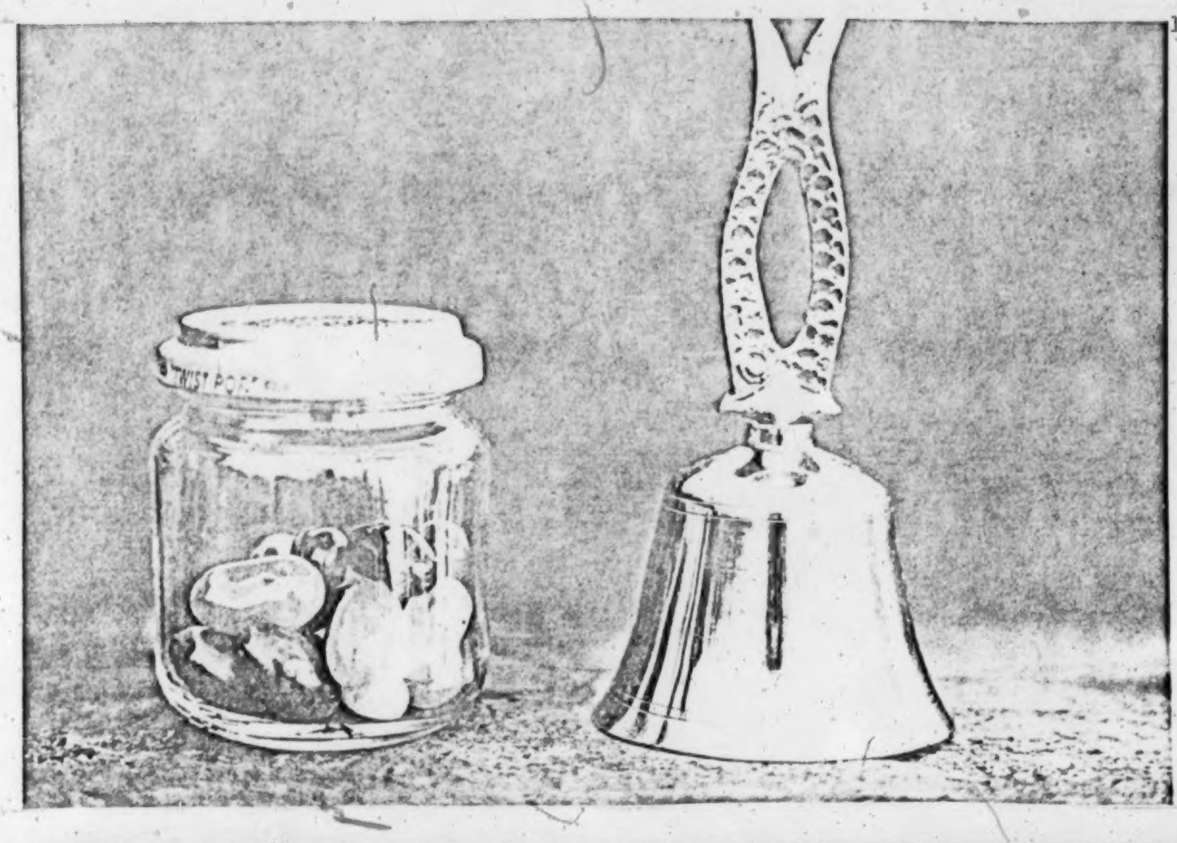

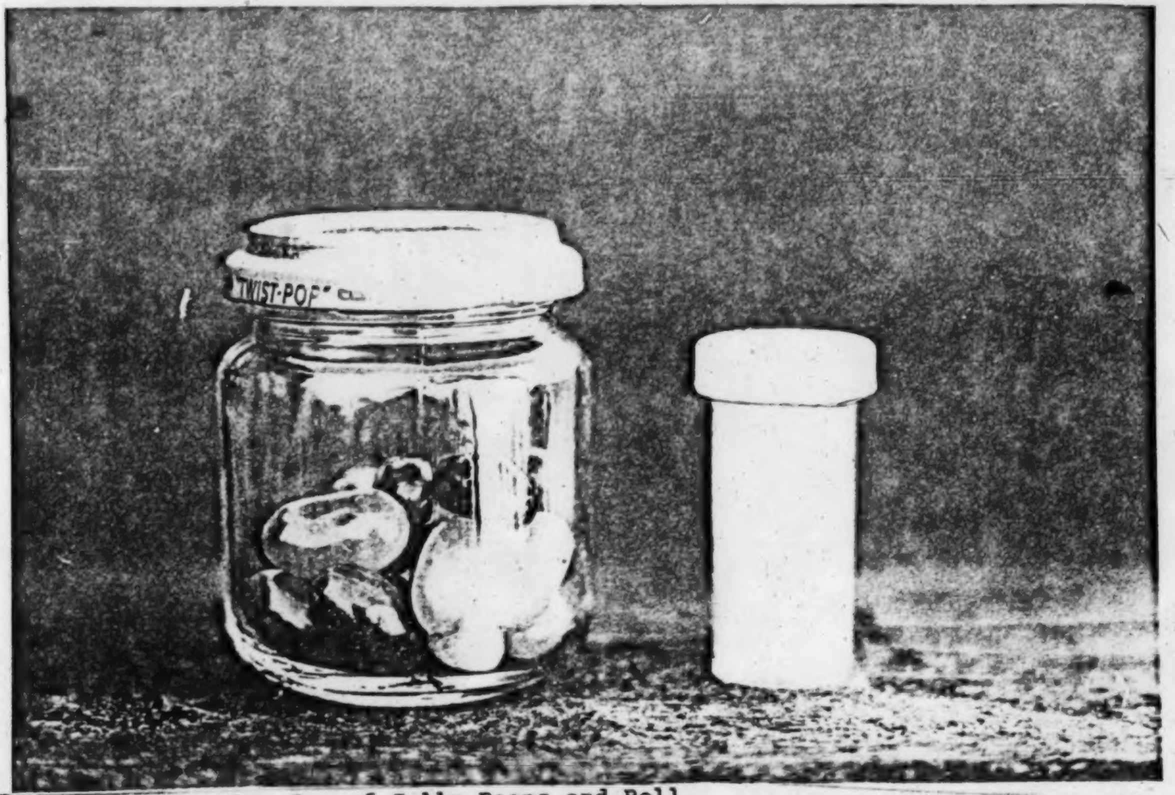

Plate I. Jar of Jelly Beans and Bell.
Jar of Jelly Beans and Container of Powder.

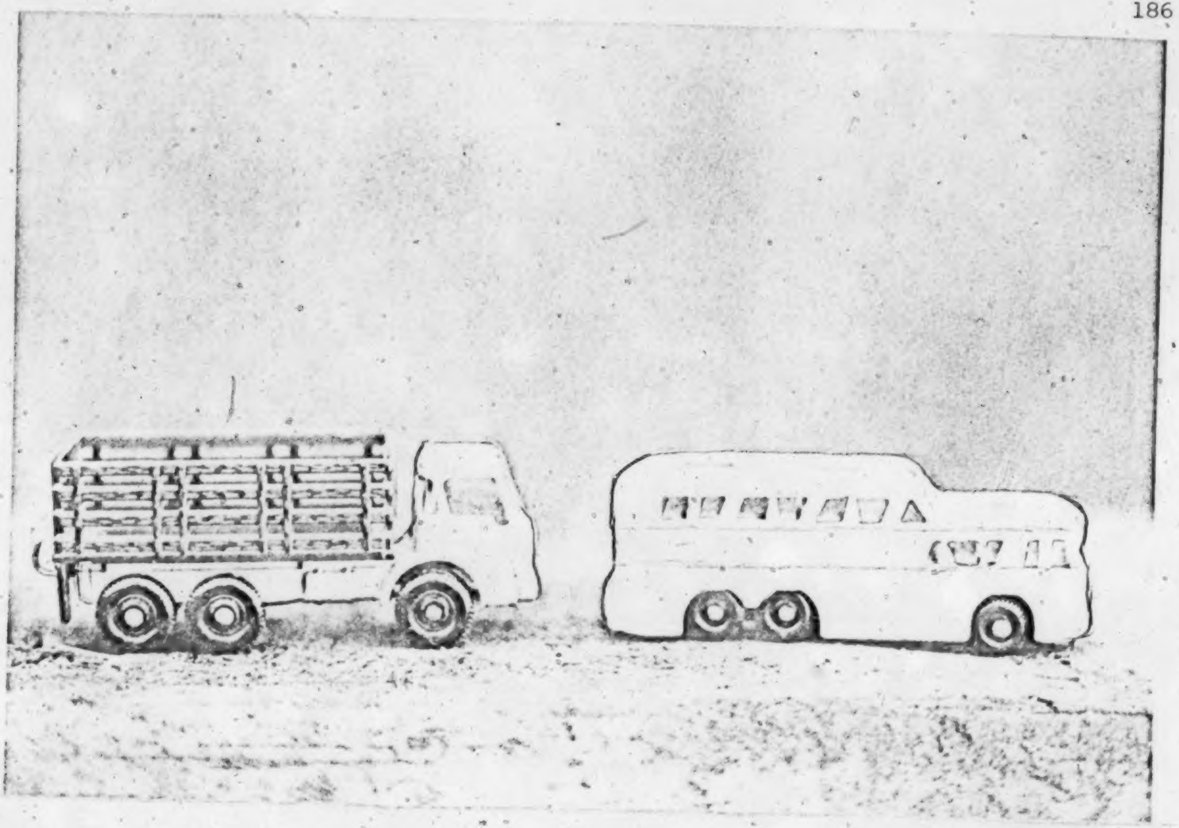

Plate II. Truck and Bus.
Slipper, Boot and Runner.

Story Telling*

Story Telling

Present the 3 pictures - the fireman, crowd and policemen, harpist and children.

Directions: I would like you to tell a story about one of these pictures. You may choose whichever one you wish. Think of a title for your story and be sure to give it when you are starting the story. I am going to leave the room while you record your story. Please call me when you have finished and we will play it back and listen to it together.

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For the pictures refer to E. Siemens, Description: A Measure of Children's Language Power. Master's thesis, University of Alberta, 1973, Plates 7 & 8.

APPENDIX B

WRITTEN QUESTIONNAIRE
(TO DETERMINE TRAVELLING AND LANGUAGE BACKGROUND)

Questionnaire

1. (a) My name is ______________________________ (First and Last).
   (b) I am __________ years old.
   (c) I was born in _______________ 19 ______.
   month year

2. (a) I have always lived in Edmonton (check one) Yes ____
   No ____

   (b) If no, name the place or places you have lived:

   ____

   (c) Circle the ones where you attended school.

3. Occupation of father ____________________________
   mother ____________________________
   guardian ____________________________

4. Education of father ____________________________
   mother ____________________________
   guardian ____________________________

5. I have travelled (check one) never ____________
   some ____________ (about 3 times)
   often ____________ (nearly every year)

6. I have travelled: (check one)
   about 100 miles or less from Edmonton ________
   Out of the province of Alberta ________

7. Name the farthest place or places you have been by naming the:

   Provinces or the cities if in Canada

   ____

   the States or the cities if in U.S.A.

   ____

   Other countries ____

8. My parents or guardian speak a language other than English in our home. (check one)

   never ________
   sometimes ________
   often ________

9. I learned to speak a language other than English when I first learned to talk: Yes ______
No ______

I still speak that language no ______
little ______
often ______

APPENDIX C

ORAL QUESTIONNAIRE
(TO DETERMINE READING EXPERIENCES)

Oral Questionnaire

Put your name on the sheet of paper I gave you and answer the following questions:

1. The number of books I read in a year is about:

    (a) 0
    (b) 1-5
    (c) 6-10
    (d) 11-15
    (e) 16-20
    (f) 21-25
    (g) 26-30

    Put down the approximate number.

2. The number of books in our home is about:

    (a) 10
    (b) 11-30
    (c) 30-50
    (d) 51-100
    (e) 100-200
    (f) 200-300
    (g) 300-500

    Put down the approximate number.

3. The number of magazines in our home. I'll read a list of names of magazines and you put down the name of the magazine or magazines you have and add more for those that are not on the list.

    Edmonton Journal
    The Albertan
    Chatelaine
    Macleans
    Time
    Readers Digest
    National Geographic
    Better Homes and Gardens
    A Children's or Youth Magazine
    Others.